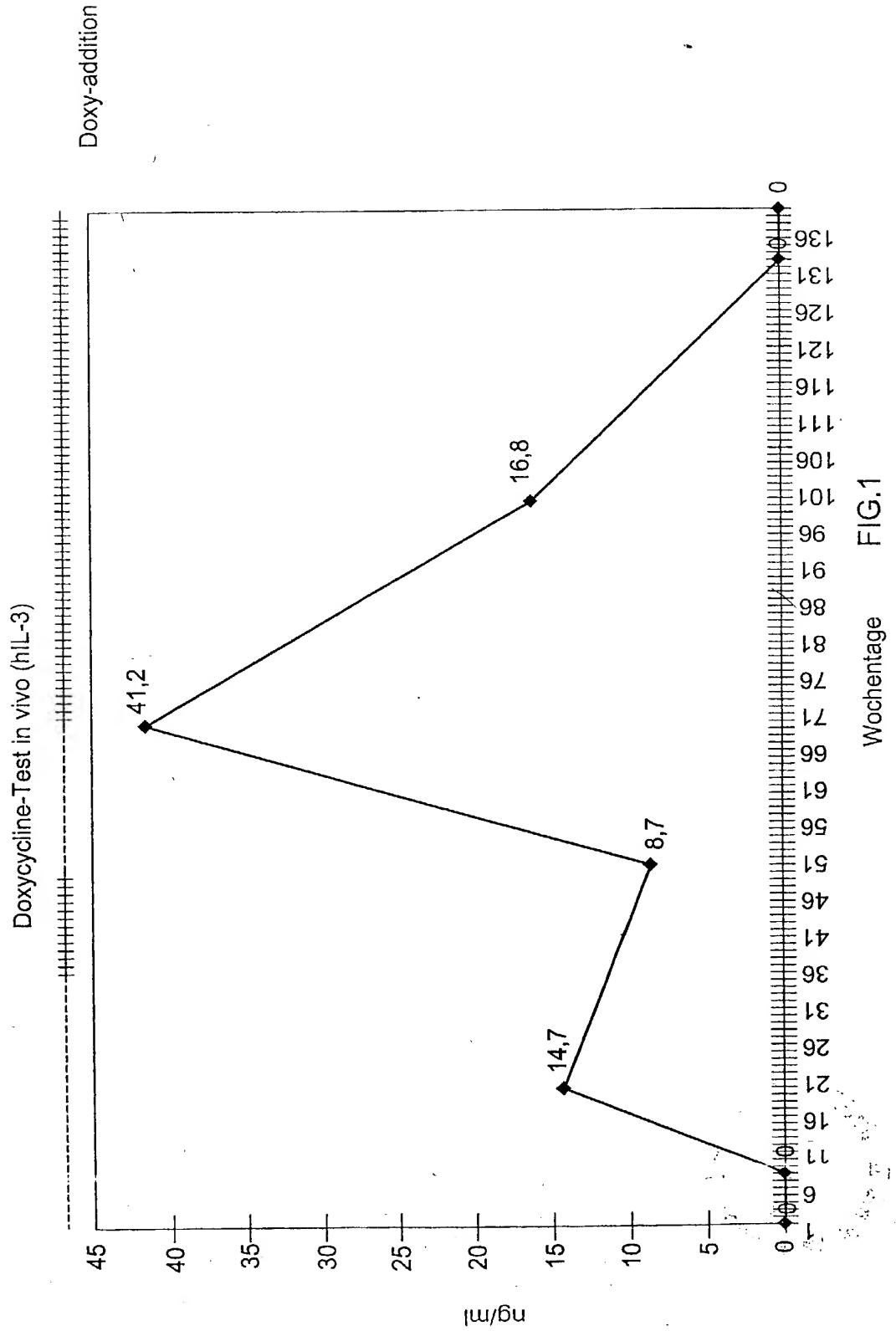


- 1/56 -



- 2/56 -

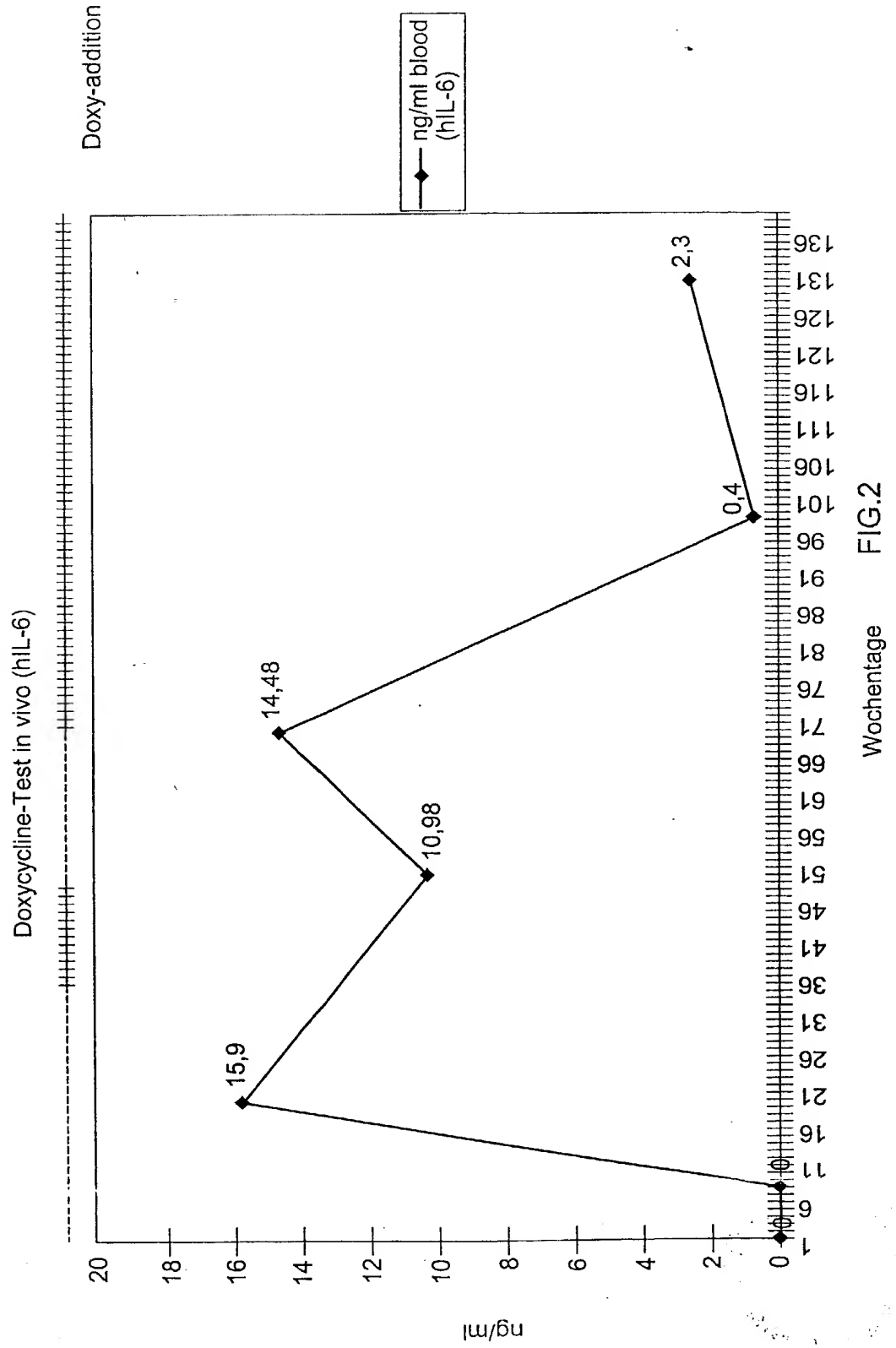


FIG.2

Scid-mice [OG,SM,OD,SC(-)]:hIL-6

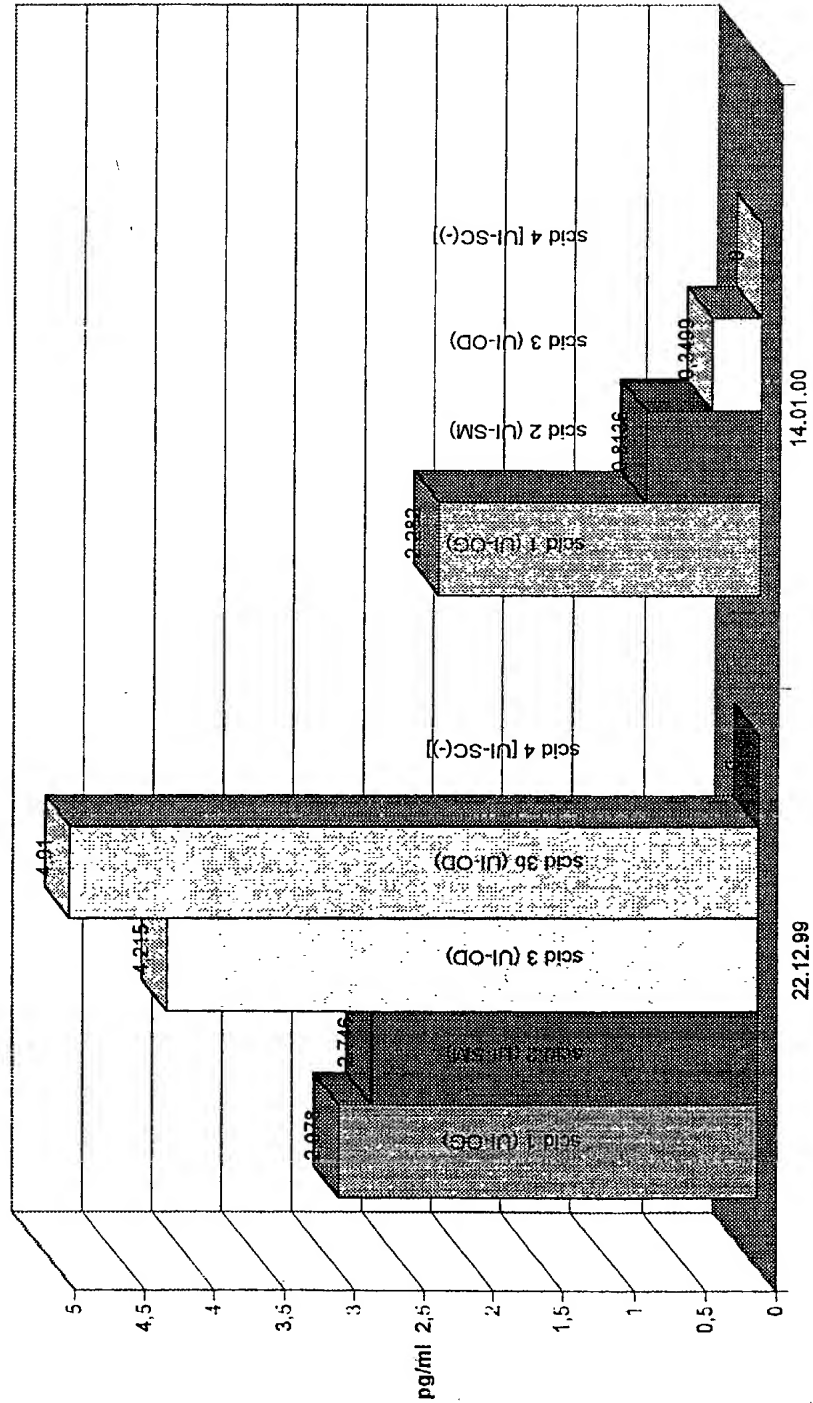
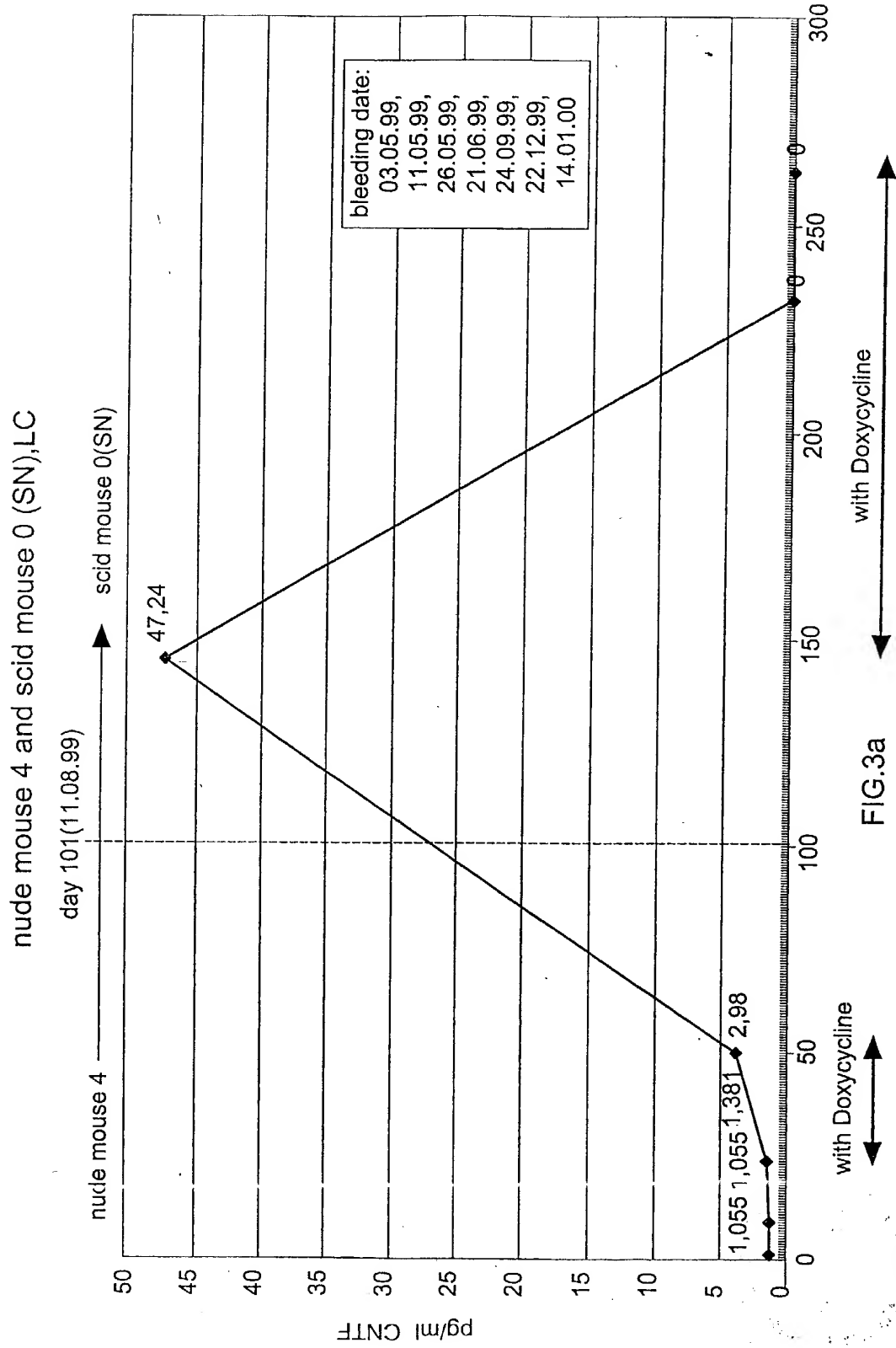
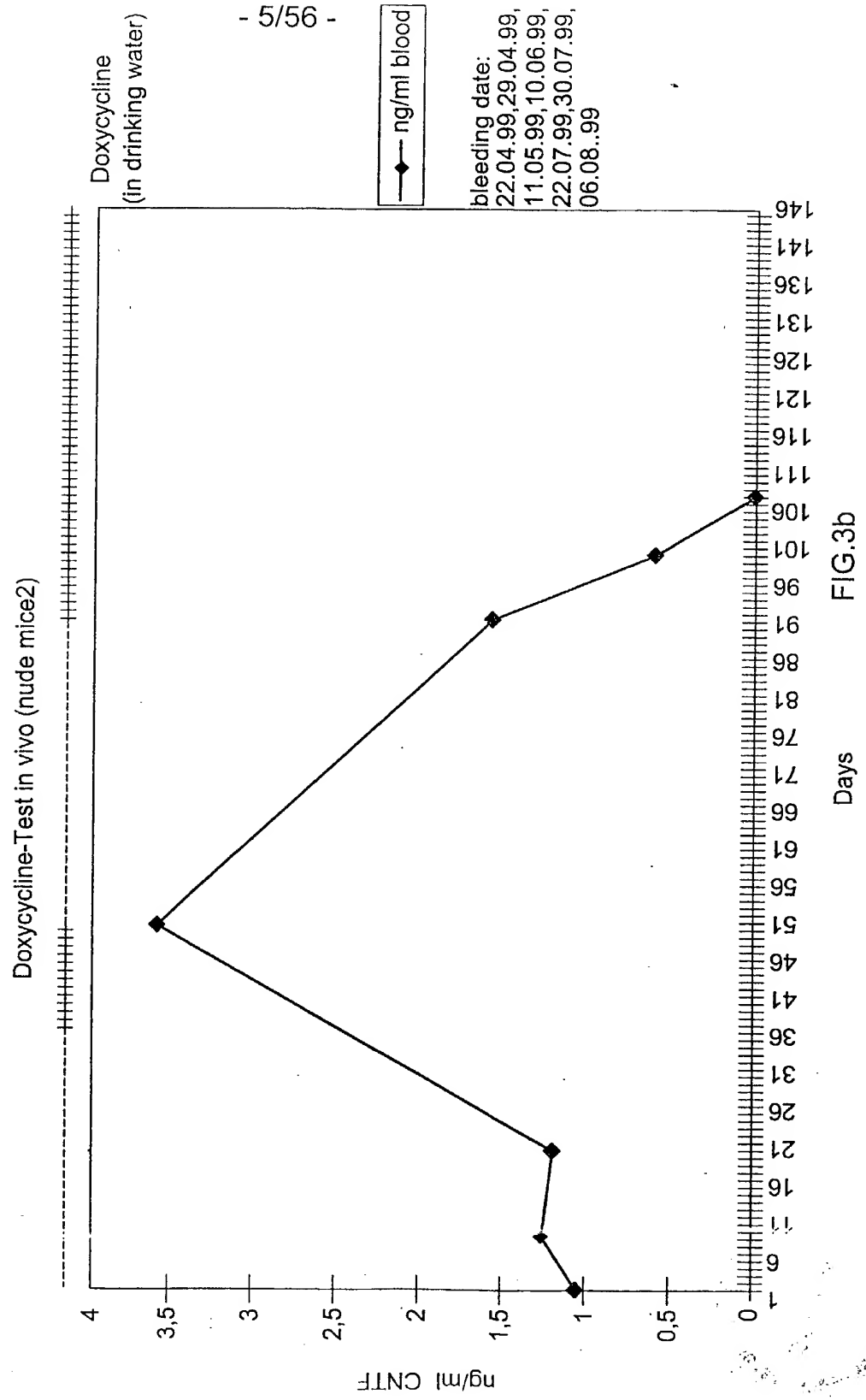


FIG.3

- 4/56 -





- 6/56 -

Cloning of growth factor genes

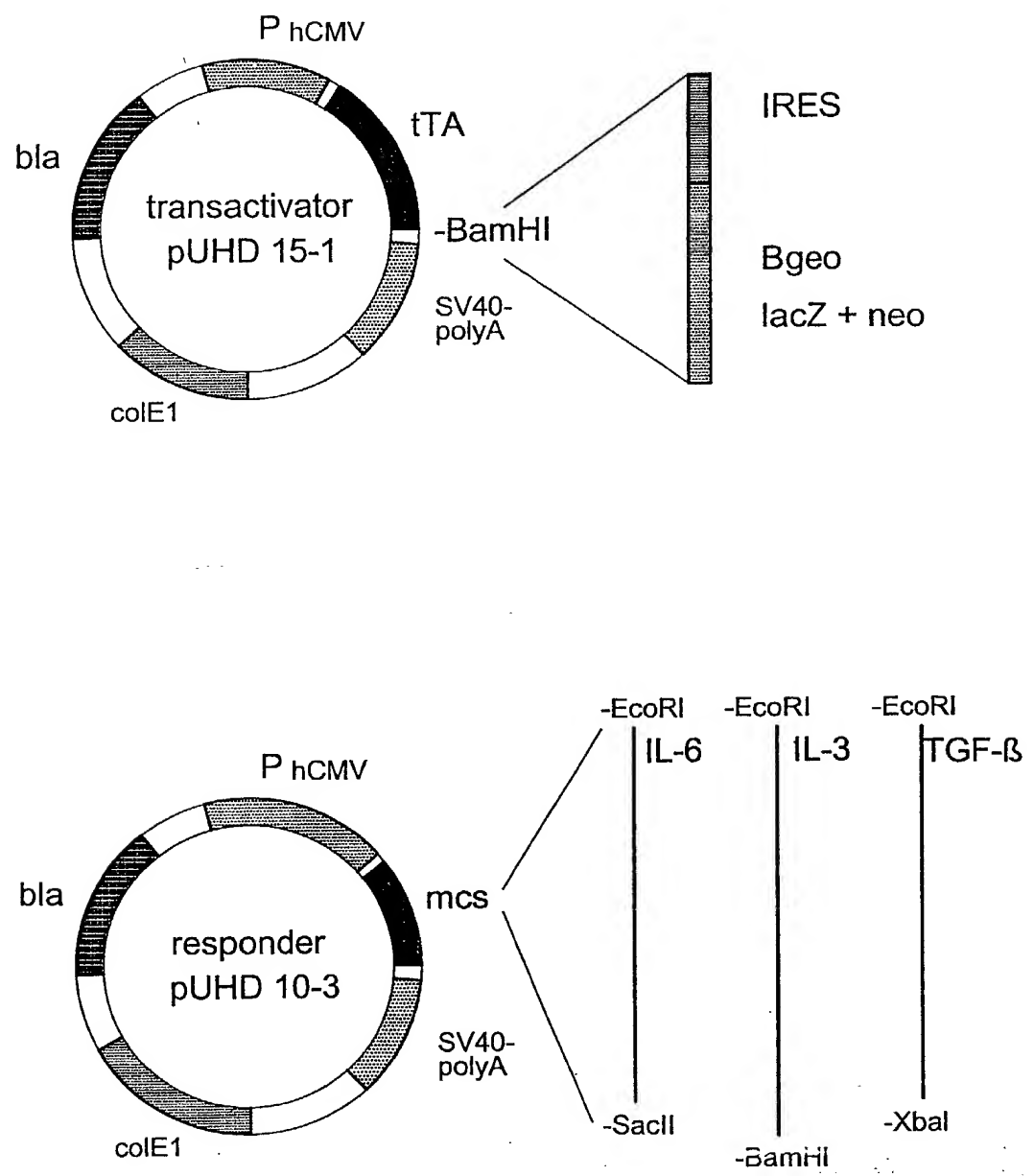


FIG.4

- 7/56 -

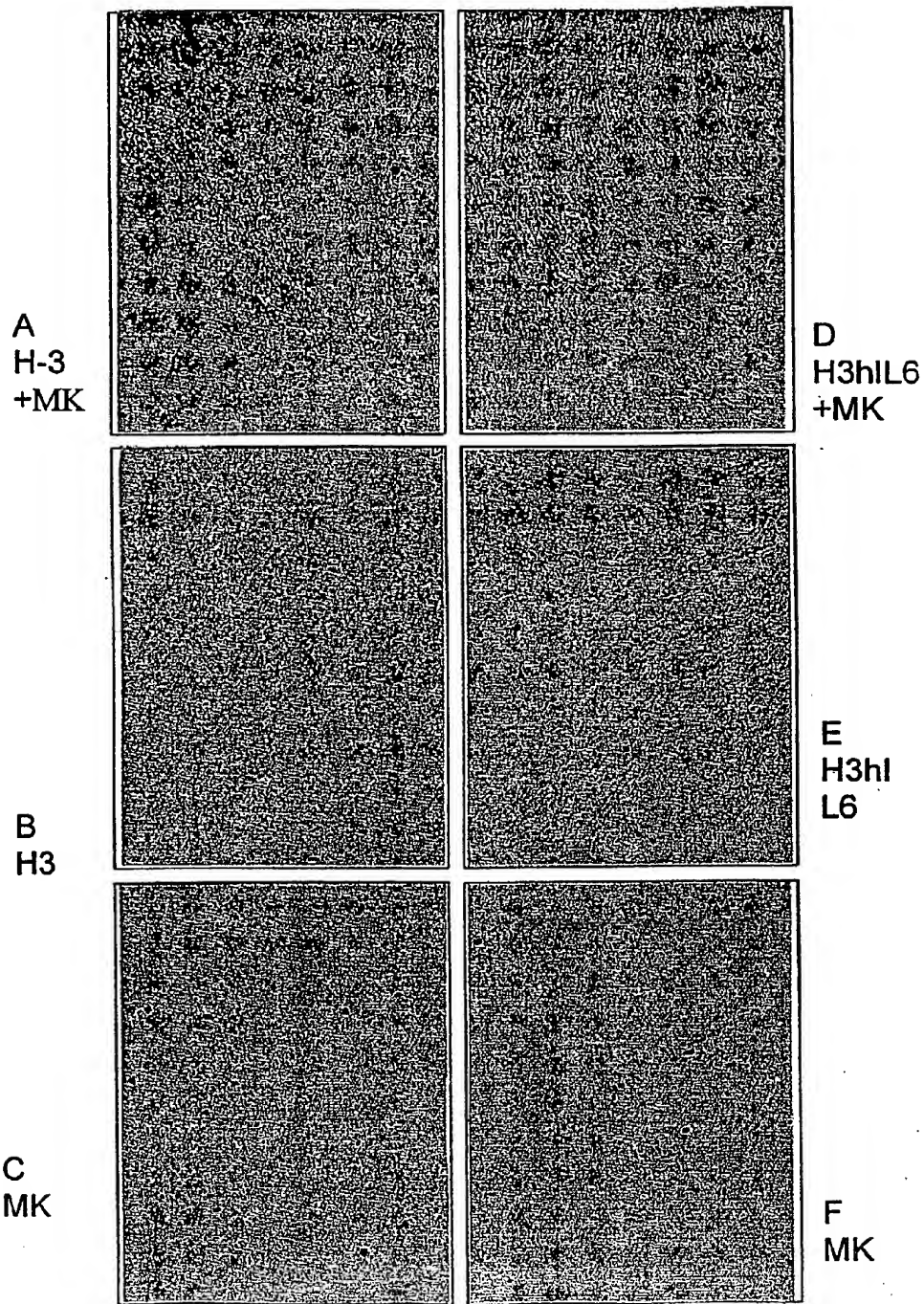


FIG.5

5wk

- 8/56 -

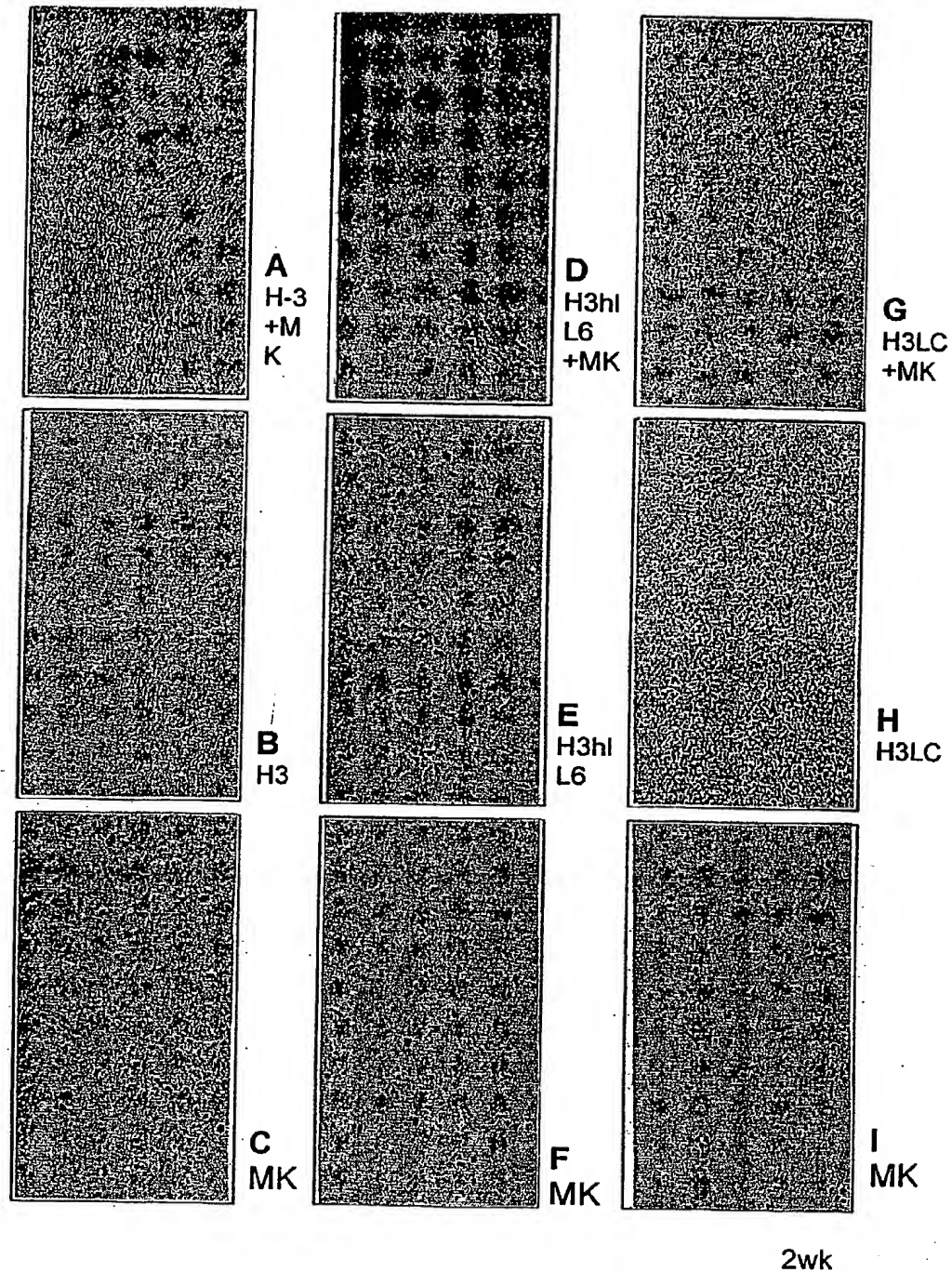
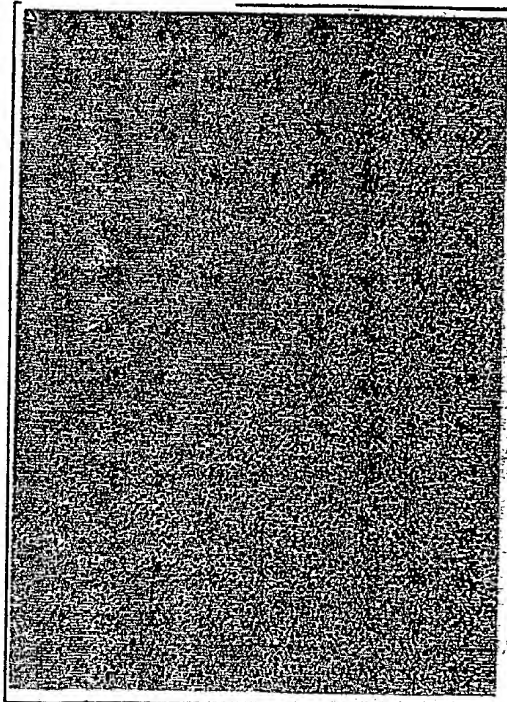
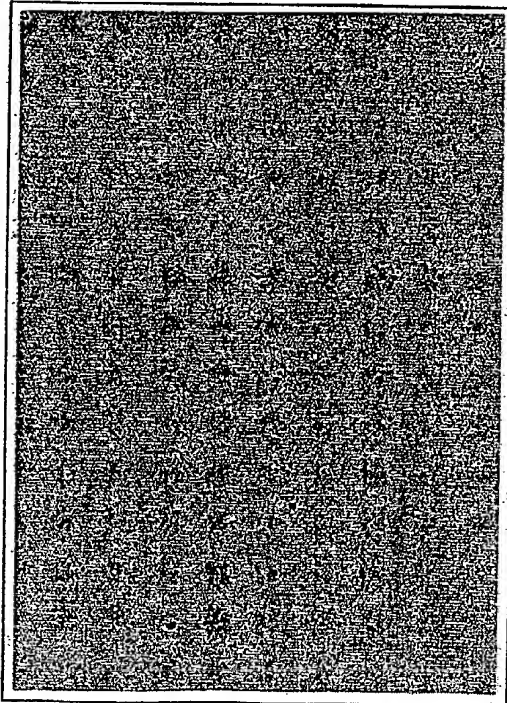
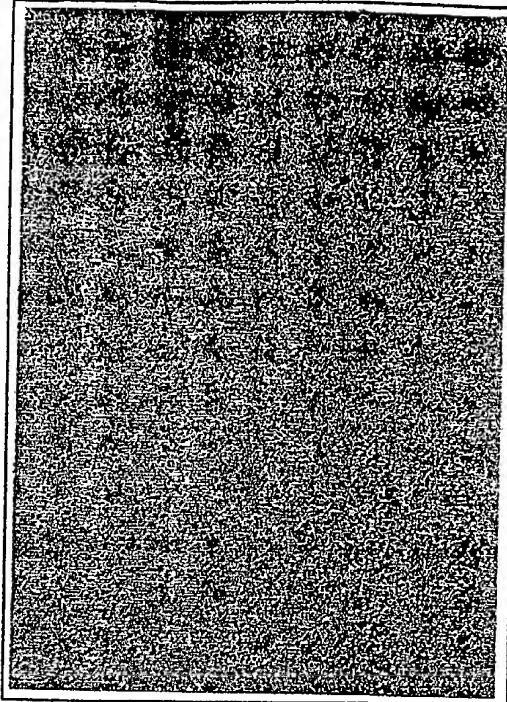
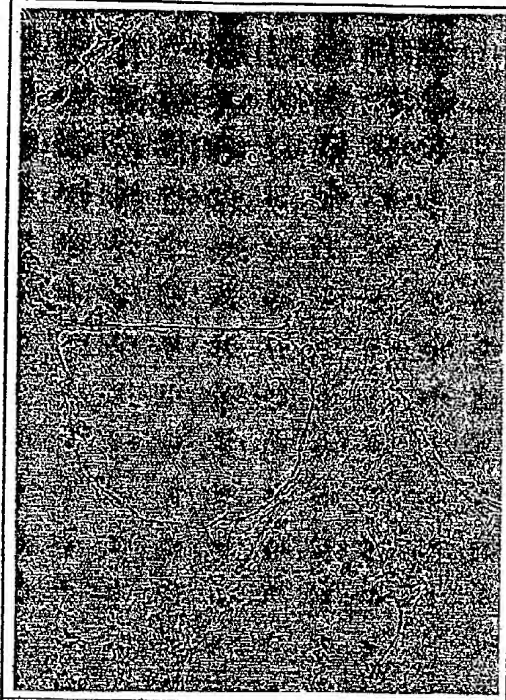


FIG.6

A.MK(MK+H3-GFP)

- 9/56 -

B.H3-GFP(MK+H3-GFP)



C.MK alone

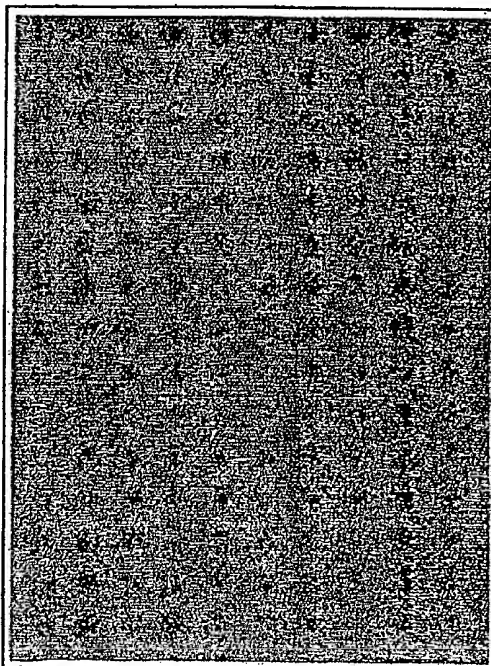
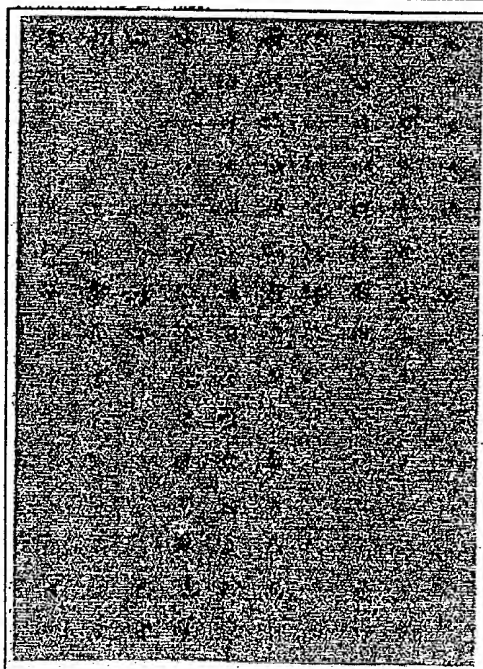
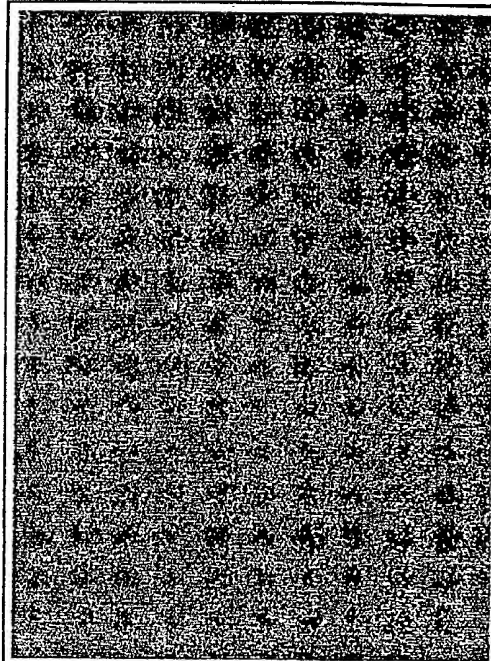
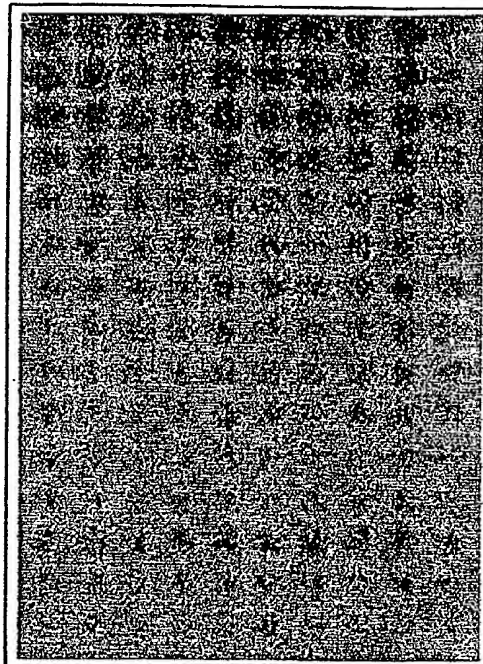
D.H3-GFP alone

FIG.7

- 10/56 -

A.MK (MK+H3-GFP-hIL6)

B.H3-GFP-hIL6(MK+H3-GFP-hIL6)



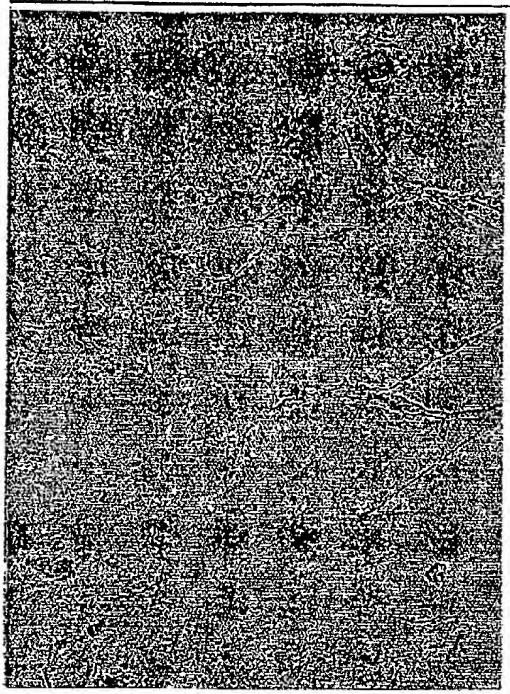
C.MK alone

D.H3-GFP-hIL6 alone

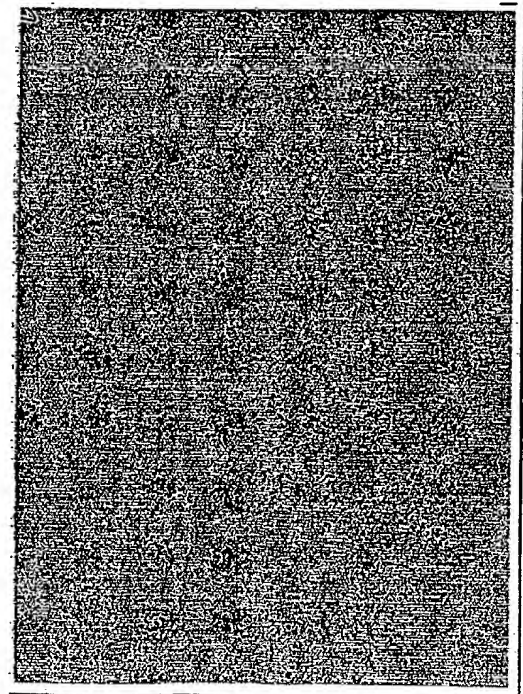
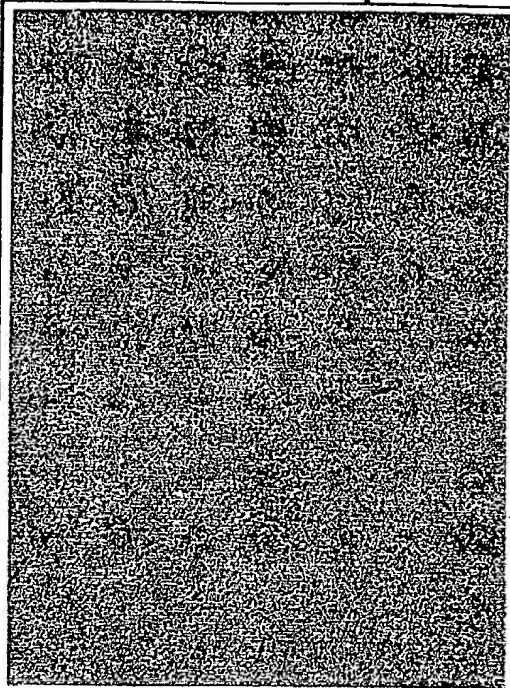
FIG.8

- 11/56 -

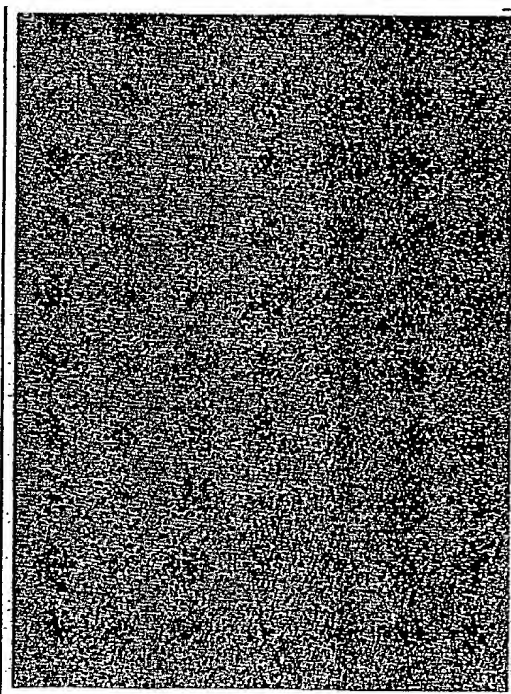
A.MK (MK+H3-LC)



B.H3-LC (MK+H3-LC)

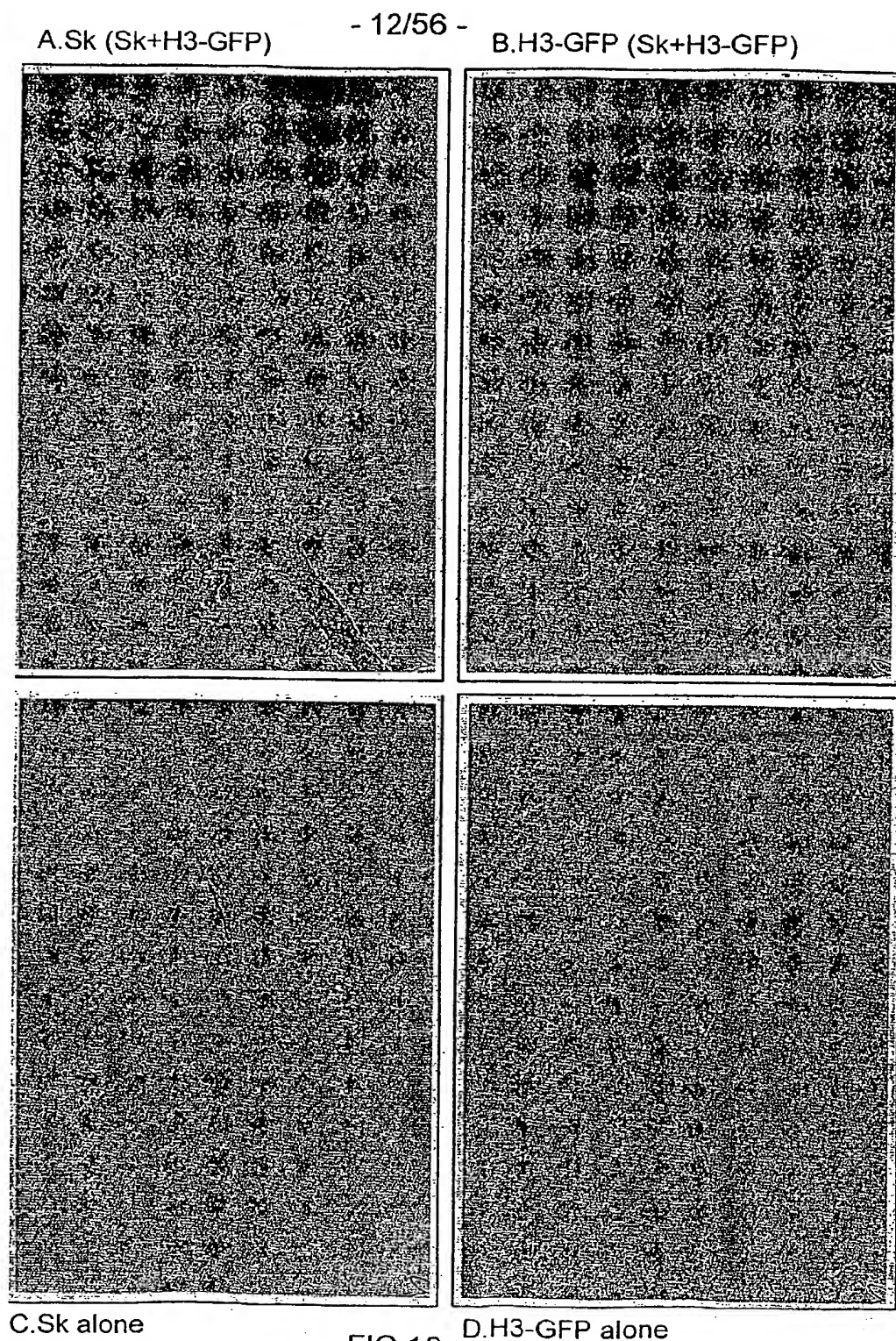


C.MK alone

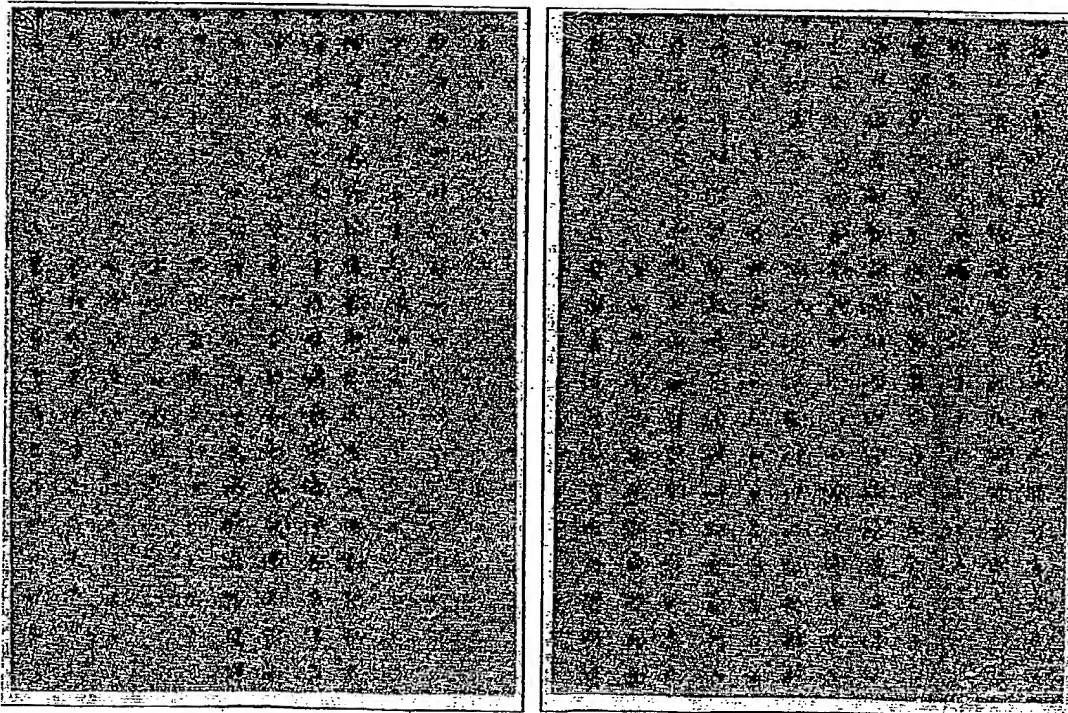
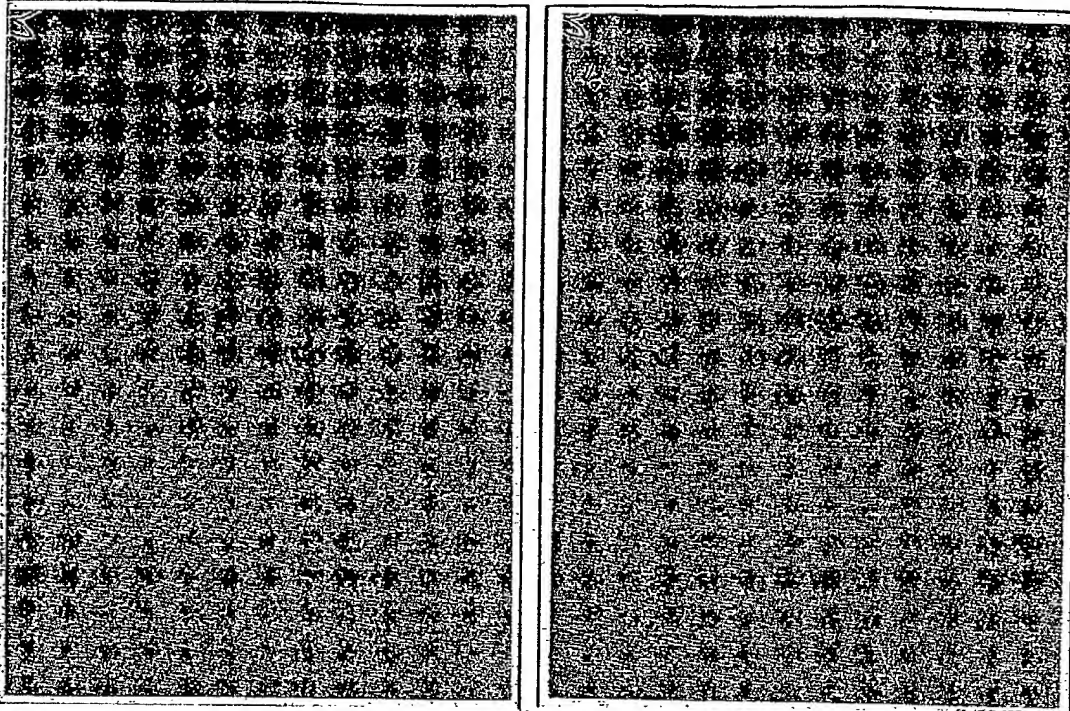


D.H3-LC alone

FIG.9



A. SK (Sk+H3-GFP-hiL6) - 13/56 - B. H3-GFP-hiL6 (Sk+H3-GFP-hiL6)



C. Sk alone

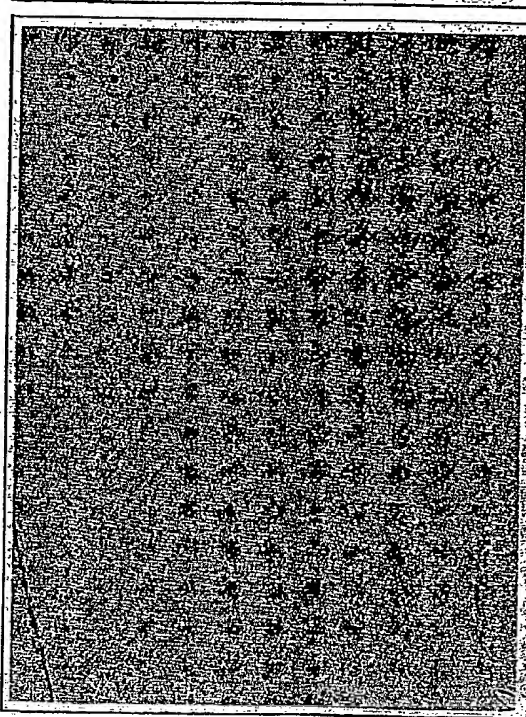
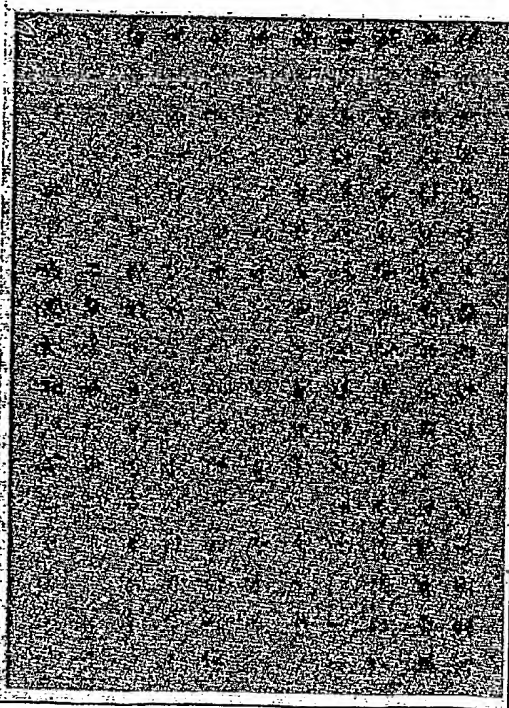
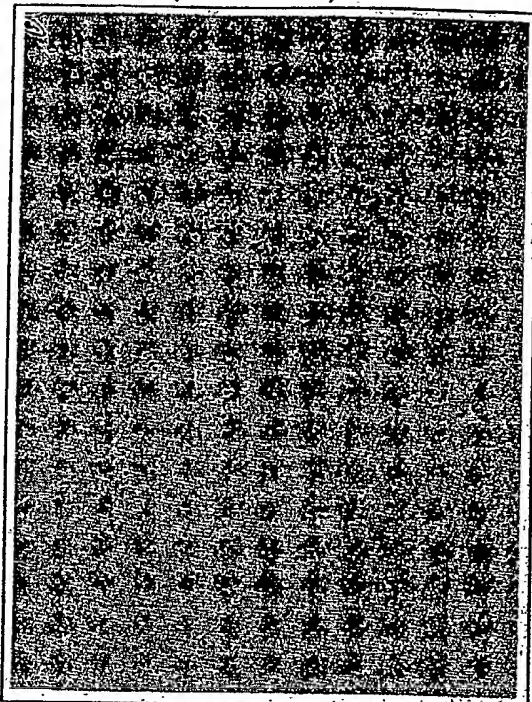
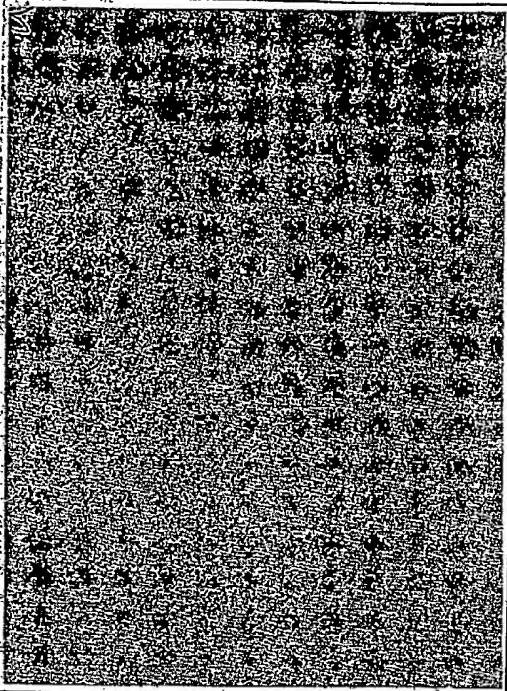
FIG.11

D. H3-GFP-hiL6 alone

A. Sk (Sk+H3-LC)

- 14/56 -

B. H3-LC (Sk+H3-LC)



C. Sk alone

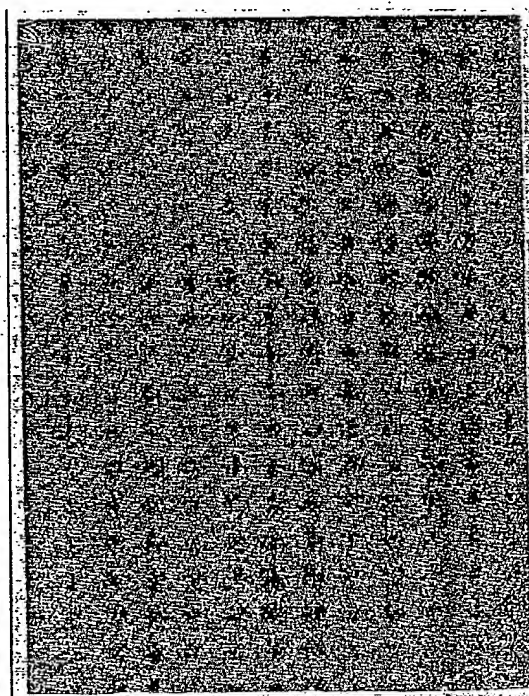
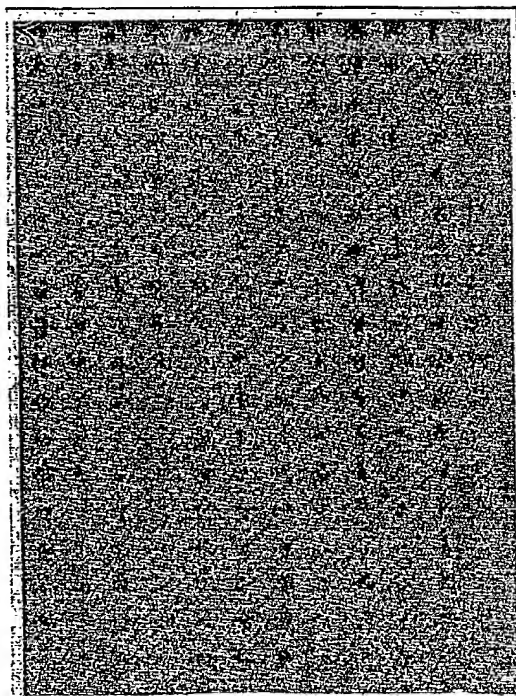
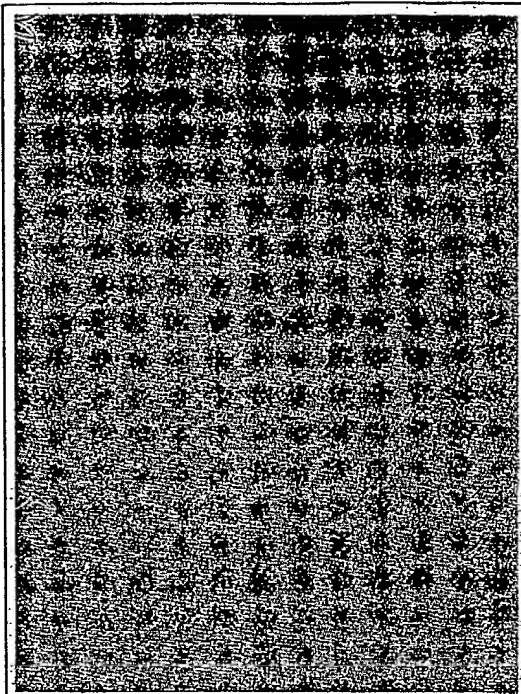
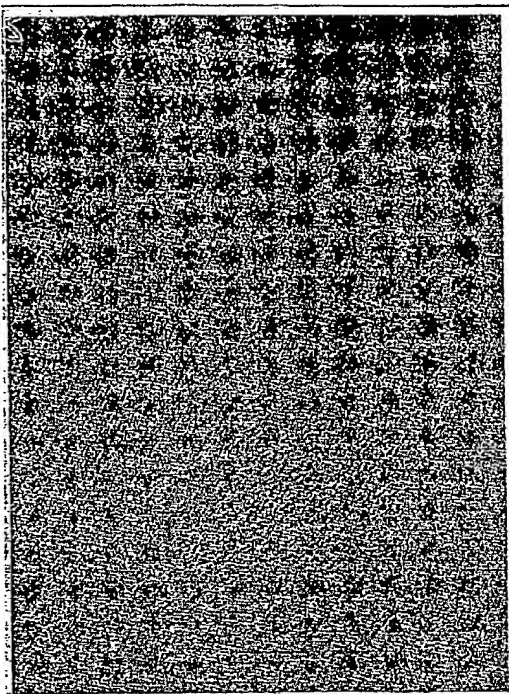
D. H3-LC alone

FIG.12

A. Sk (Sk+MK)

- 15/56 -

B. MK (Sk+MK)



C. Sk alone

D. MK alone

FIG.13

FIG.14

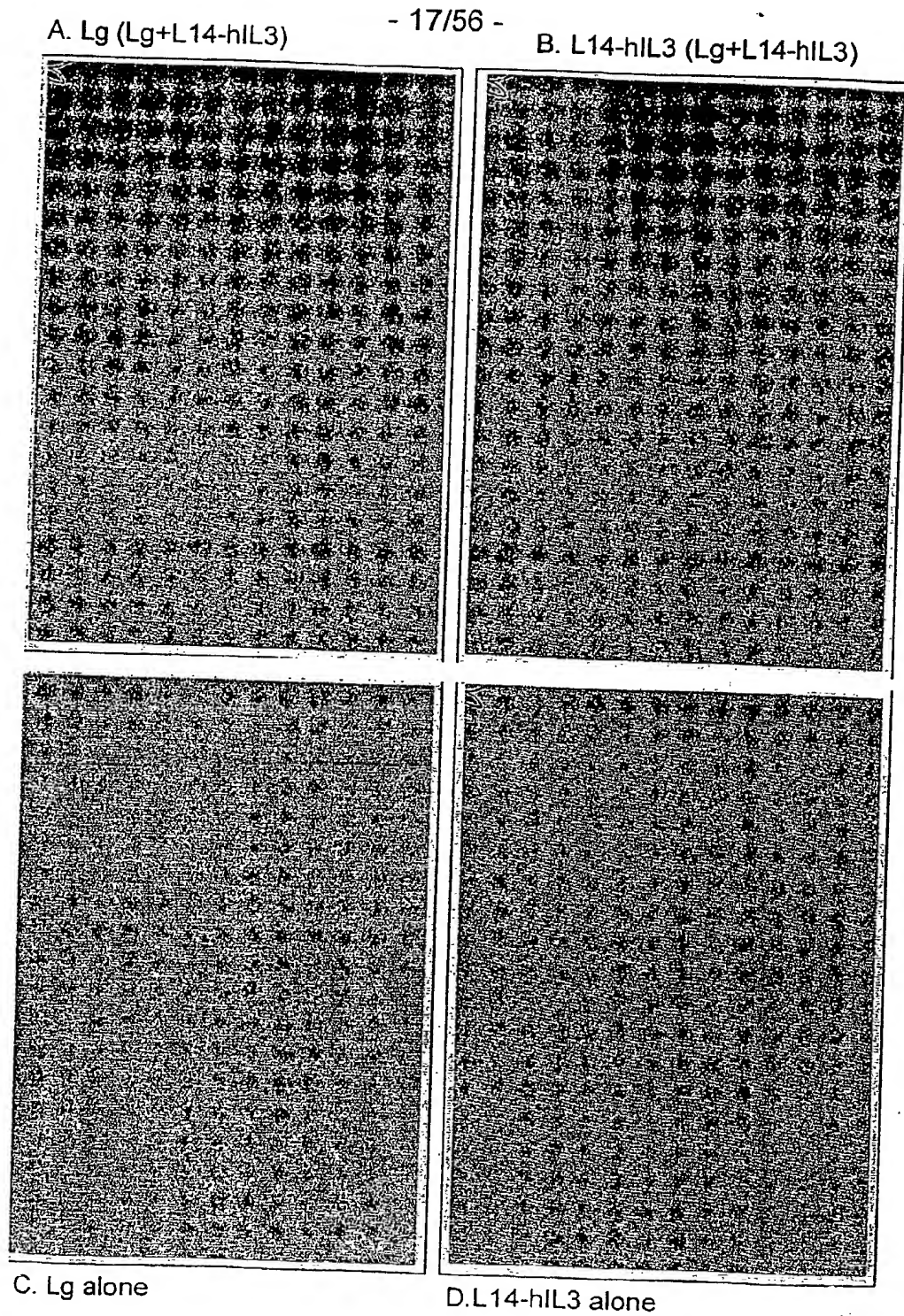


FIG.15

- 18/56 -

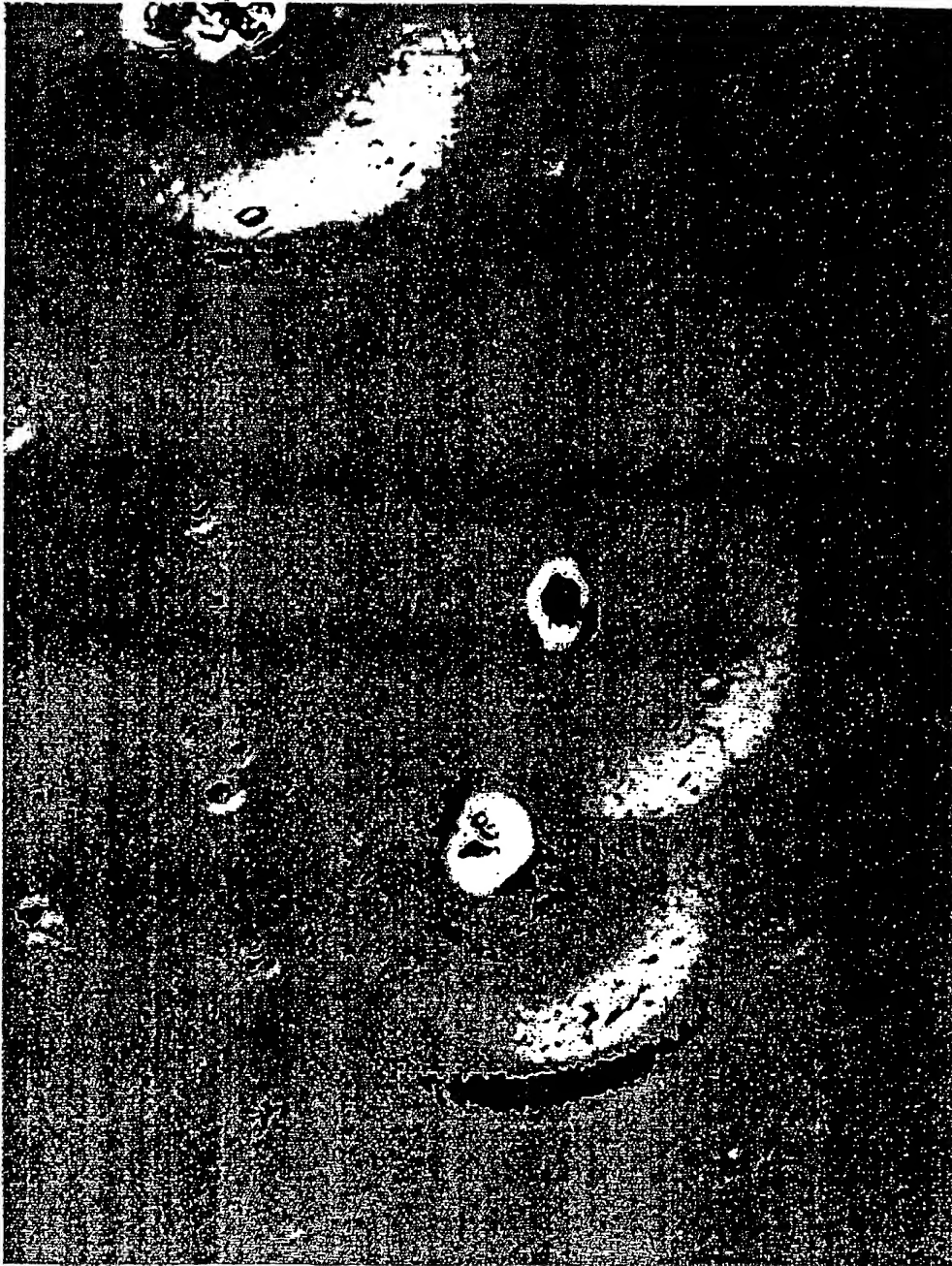


FIG.16

- 19/56 -

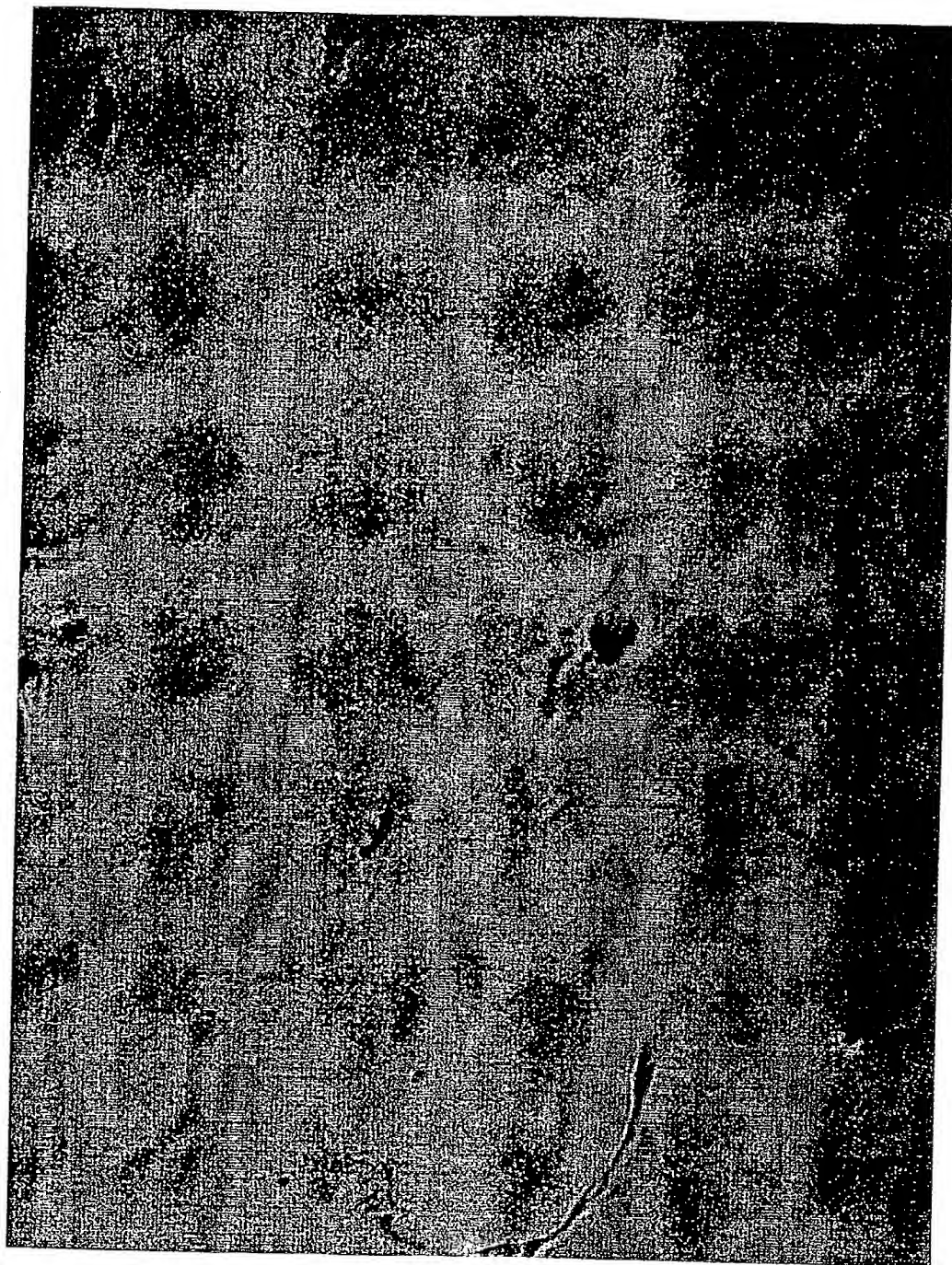


Fig. 17.

- 21/56 -

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2651 GAACATTCG CAGCCTACCG TAGTGTGTTT TTCCAAAAG GGGTTGCAAA

- 22/56 -

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 3951 AATGTAAGTG TATTCAGCGA TGACGAAATT CTTAGCTATT GTAATGACTC
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- 23/56 -

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4851 TGGATCCCCG GGTCCCTATA GTGAGTCGTA TTAGCTTGGC GTAATCATGG
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5401 CCCTGGAAGC TCCCTCGTGC GCTCTCCTGT TCCGACCCTG CCGCTTACCG
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- 24/56 -

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- 25/56 -

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Fig. 18

- 26/56 -

JCVPlong-gdnf Length: 6971 June 8, 1999 16:42 Type: N Check: 3588 ..

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1701 AAAAATTTTG AACGTGCAAA AAAAATTACC AATAATCCAG AAAATTATTA
1751 TCATGGATTG TAAACGGAT TACCAGGGAT TTCAGTCGAT GTACACGTTT
1801 GTCACATCTC ATCTACCTCC CGGTTTTAAT GAATACGATT TTGTACCAGA
1851 GTCCTTTGAT CGTGACAAAA CAATTGCACT GATAATGAAT TCCTCTGGAT
1901 CTACTGGGTT ACCTAAGGTT GTGGCCCTTC CGCATAGAAC TGCTGCGTTC
1951 AGATTCTCGC ATGCCAGAGA TCCTATTTTT GGCAATCAAA TCATTCCGGA
2001 TACTGCGATT TTAAGTGTG TTCCATTCCA TCACGGTTTT GGAATGTTTA
2051 CTACACTCGG ATATTGATA TGTGGATTTC GAGTCGTCTT AATGTATAGA
2101 TTTGAAGAA AGCTGTTTTT ACGATCCCTT CAGGATTACA AAATTCAAAG
2151 TCGGTTGCTA GTACCAACCC TATTTTCATT CTTGCGCAA AGCACTCTGA
2201 TTGACAAATA CGATTTATCT AATTTACACG AAATTGCTTC TGGGGGCGCA
2251 CCTCTTTTCA AAGAAGTCGG GGAAGCGGTT GCAAAACGCT TCCATCTTCC
2301 AGGGATACGA CAAGGATATG GGCTCACTGA GACTACATCA GCTATTCTGA
2351 TTACACCCGA GGGGATGAT AAACCGGGCG CGGTGCGTAA AGTTGTTCCA
2401 TTTTTTGAAG CGAAGGTTGT GGATCTGGAT ACCGGGAAAA CGCTGGGCGT
2451 TAATCAGAGA GGCGAATTAT GTGTCAGAGG ACCTATGATT ATGTCCGGTT
2501 ATGTAAACAA TCCGGAAGCG ACCAACGCCT TGATTGACAA GGATGGATGG
2551 CTACATTCTG GAGACATAGC TTACTGGGAC GAAGACGAAC ACTTCTTCAT
2601 AGTTGACCGG TTGAAGTCTT TAATTAAATA CAAAGGATAT CAGGTGGCCC
2651 CCGCTGAATT GGAATCGATA TTGTTACAAC ACCCCAACAT CTTGACGCGG
2701 GGCCTGGCAG GTCTTCCCGA CGATGACGCC GGTGAACTTC CCGCCGCCGT
2751 TGTGTTTTTG GAGCACGGAA AGACGATGAC GGAAGAAAG AGCTGGGATT
2801 ACGTCGCCAG TCAAGTAACA ACCGCGAAAA AGTTGCGCG AGGAGTTGTG
2851 TTTGTGGACG AAGTACCGAA AGGTCTTACC GGAAGAACTCG ACGCAAGAAA
2901 AATCAGAGAG ATCCTCATAA AGGCCAAGAA GGGCGGAAAG TCCAAATTGT
2951 AAAATGTTAC TGTATTGAGC GATGACGAAA TTCTTAGCTA TTGTAATGAC
3001 TCTAGAGGAT CTTTGTGAAG GAACCTTACT TCTGTGGTGT GACATAATTG
3051 GACAACTTAC CTACAGAGAT TTAAAGCTCT AAGGTAAATA TAAATTTTTT
3101 AAGTGATATA TGTGTTAAAC TACTGATTCT AATTGTTTGT GTATTTTAGA
3151 TTCCAACCTA TGAACCTGAT GAATGGGAGC AGTGGTGGAA TGCCTTTAAT
3201 GAGGAAAACC TGTTTTGCTC AGAAGAAATG CCATCTAGTG ATGATGAGGC

```

Fig. 19

3251	TACTGCTGAC	TCTCAACATT	CTACTCCTCC	AAAAAAGAAG	AGAAAGGTAG
3301	AAGACCCCAA	GGACTTTTCT	TCAGAATTGC	TAAGTTTTTT	GAGTCATGCT
3351	GTGTTTAGTA	ATAGAACTCT	TGCTTGCTTT	GCTATTTTACA	CCACAAAGGA
3401	AAAAGCTGCA	CTGCTATACA	AGAAAATTAT	GGAAAAATAT	TCTGTAACCT
3451	TTATAAGTAG	GCATAACAGT	TATAATCATA	ACATACTGTT	TTTTCTTACT
3501	CCACACAGGC	ATAGAGTGTG	TGCTATTAA	AACTATGCTC	AAAAATTGTG
3551	TACCTTTAGC	TTTTTAATTT	GTAAGGGGT	TAATAAGGAA	TATTTGATGT
3601	ATAGTGCTT	GACTAGAGAT	CATAATCAGC	CATACCACAT	TTGTAGAGGT
3651	TTTACTTGCT	TTAAAAAACC	TCCCACACCT	CCCCCTGAAC	CTGAAACATA
3701	AAATGAATGC	AATTGTTGTT	GTAAACTTTC	TTATTGCAGC	TTATAATGGT
3751	TACAAATAAA	GCAATAGCAT	TACAAATTTG	ACAAATAAAG	CATTTTTTTT
3801	ACTGCATTCT	AGTTGTGGTT	TGTCCTCAAC	CATCAATGTA	CTTTATCATG
3851	TCTGGATCCC	CGGGTCCCTA	TAGTGAGTCG	TATTAGCTTG	GCGTAATCAT
3901	GGTCATAGCT	GTTTCTCTGT	TGAAATTTGT	ATCCGCTCAC	AATTCCACAC
3951	AACATACGAG	CCGGAAGCAT	AAAGTGTAAG	GCCTGGGGTG	CCTAATGAGT
4001	GAGCTAACTC	ACATTAATTC	CGTTGCGCTC	ACTGCCCGCT	TTCCAGTCGG
4051	GAAACCTGTG	GTGCCAGCTG	CATTAATGAA	TCGGCCAACG	CGCGGGGAGA
4101	GCGCGTTTGC	GTATTGGGCG	CTCTTCCGCT	TCCTCGCTCA	CTGACTCGCT
4151	GCGCTCGGTC	GTTCCGGTGC	GCGCAGCGGT	ATCAGCTCAC	TCAAAGGCGG
4201	TAATACGGTT	ATCCACAGAA	TCAGGGGATA	ACGCAGGAAA	GAACATCTGA
4251	GCAAAAGGCC	AGCAAAAGGC	CAGGAACCGT	AAAAAGGCCG	CGTTGCTGGC
4301	GTTTTTCCAT	AGGCTCCGCG	CCCCTGACGA	GCATACAAAA	AATCGACGCT
4351	CAAGTCAGAG	TGGCGGAAC	CCGACAGGAC	TATAAGATA	CCAGCGTTT
4401	CCCCCTGGAA	GCTCCCTCGT	GCGCTCTCCT	GTTCCGACCC	TGCCGGTTAC
4451	CGGATACCTG	TCCGCCCTTC	TCCCTTCGGG	AAGCGTGGCG	CTTTCCTAAT
4501	GCTCAGCTG	TAGGTATCTC	AGTTCCGGTG	AGGTCGTTCC	CTTCAAGCTG
4551	GGCTGTGTGC	ACGAATCCCC	CGTTACGCCC	GACCCGTCGC	CCTTATCCGG
4601	TAACATATCGT	CTTGAGTCCA	ACCCGGTAAG	ACACGACTTA	TCGCCACTGG
4651	CAGCAGCCAC	TGGAACAGG	ATTAGCAGAG	CGAGGTATGT	AGGCGGTGCT
4701	ACAGAGTTCT	TGAAGTGGTG	TGCTAACTAC	GGCTACACTA	GAAGGACAGT
4751	ATTTGGTATC	TGCGCTCTGC	TGAAGCCAGT	TACCTTCGGA	AAAAGAGTTG
4801	GTAGCTCTTG	ATCCGGCAAA	CAAACCACCG	CTGGTAGCGG	TGGTTTTTTTT
4851	TTTTGCAAGC	AGCAGATTAC	GCGCAGAAAA	AAAGAGTCTC	AAGAAGATCC
4901	GTTGATCTTT	TCTACGGGGT	CTGACGCTCA	GTGAACGAA	AACCTACGTT
4951	AAGGGATTTT	GGTCATGAGA	TTATCAAAAA	GGATCTTCAC	CTAGATCCTT
5001	TTAAATFAAA	AATGAAGTTT	TAAATCAATC	TAAAGTATAT	ATGAGTAAAC
5051	TTGGCTGAC	AGTTACCAAT	GCTTAATCAG	TGAGGCACCT	ATCTCAGCGA
5101	TCTGTCTATT	TCGTTCTATC	ATAGTTGCCT	GACTCCCCGT	CGTGTAGATA
5151	ACTACGATAC	GGGAGGGCTT	ACCATCTGGC	CCCAGTGCTG	CAATGATACC
5201	GCGAGACCCA	CGCTCACC GG	CTCCAGATTT	ATCAGCAATA	AACCAGCCAG
5251	CCGGAAGGGC	CGAGCGCAGA	AGTGGTCTGT	CAACTTTATC	CGCCTCCATC
5301	CAGTCTATTA	ATTGTTGCCG	GGAAGCTAGA	GTAAGTAGTT	CGCCAGTTAA
5351	TAGTTTGGCG	AACGTTGTTG	CCATTGCTAC	AGGCATCGTG	GTGTCACGCT
5401	CGTCGTTTGG	TATGGCTTCA	TTAGCTCCCG	GTTCCCAACG	ATCAAGGGCA
5451	GTTACATGAT	CCCCATGTTT	GTGCAAAAAA	CGGTTTAGCT	CCTTCGGTCC
5501	TCCGATCGTT	GTCAGAAGTA	AGTTGGCCGC	AGTGTTATCA	CTCATGGTTA
5551	TGGCAGCAGT	GCATAATTCT	CTTACTGTCA	TGCCATCCGT	AAGATGCTTT
5601	TCTGTGACTG	GTGAGTACTC	AACCAAGTCA	TTCTGAGAA	AGTGTATGCG
5651	GCGACCGAGT	TGCTCTTGCC	CGCGCTCAAT	ACGGGATAAT	ACCGCGCCAC
5701	ATAGCAGAAC	TTTAAAGATG	CTCATCATTG	GAAAACGTTT	TTCCGGGGCGA
5751	AAACTCTCAA	GGATCTTACC	GCTGTTGAGA	TCCAGTTCCA	TGTAACCCAC
5801	TCGTGCACCC	ACATGATGTT	CAGCATCTTT	TACTTTTACC	AGCGTTTCTG
5851	GGTGAGCAAA	AACAGGAAGG	CAAAATGCCG	CAAAAAAGGG	AATAAGGGCG
5901	ACACGGAAAT	GTTGAATACT	CATACCTTTC	CTTTTTCAAT	ATTATTGAAG
5951	CATTATCAG	GGTATTGTC	TCATGAGCGG	ATACATATTT	GAATGTATTT
6001	AGAAAAATAA	ACAAATAGGG	GTTCCGCGCA	CATTTCCCGG	AAAAGTGCCA
6051	CCTGACGTCT	AAGAAACCAT	TATTATCATG	ACATTAAACCT	ATAAAAAATAG
6101	CGGTATCAGC	AGGCCCTTTC	GTCTCGCGCG	TTTCGGTGAT	GACGGTAAAA
6151	ACCTPTGACA	CATGCAGCTC	CCGGAGACGG	TCACAGCTTG	TCTGTAAGCG
6201	GATGCCGGGA	GCAGACAAGC	CCGTACGGGC	CGCTCAGCGG	GTGTTGGCGG
6251	GTGTCGGGGC	TGGCTTAACT	ATGCGGCATC	AGAGCAGATT	GTACTGAGAG
6301	TGCACCATAT	GCGGTGTGAA	ATACCGCACA	GATGCGTAAG	GAGAAAAATC
6351	CGCATCAGGC	GCCATTTCGCC	ATTACGGCTG	CGCAACTGTT	GGGAAGGGCG
6401	ATCGGTGCGG	GCCTCTTCGC	TATTACGCCA	GCTGGCCGAA	GGGGGATGTG
6451	CTGCAAGGCG	ATTAAG			

6601 CTGGCTCGCA AAACATGTTT CCTTGGCTGC TTTCCACTTC CCCTTGTGCT
6651 TTGTTTACTT GTGTCAGCTG GTTGGCTCCC TAGGTATGAG CTCATGCTTG
6701 GCTGGCAGCC ATCCAGTTTT AGCCAGCTCT GCTTTGTTTA CTTGTGTCAG
6751 CTGGTTGGCT CCCTAGGTAT GAGCTCATGC TTGGCTGGCA GCCATCCAGT
6801 TTTAGCCAGC TCCTCCCTAC CTTCCCTTTT TTTTATATAT ACAGGAGGCT
6851 GAGGCCGCCT CCGCTCCAA GCTTACTCAG AAGTAGTAAG GGCGTGGAGG
6901 CTTTTTAGGA GGCCAGGGAA ATTCCCTTGT TTTTCCCTTT TTGTCAGTAA
6951 TTTTTTGCTG CAAAAGCTA A

Fig. 19

pD12JCVPhshort-hCNTF

Length: 7558

1 GCTAGCGATT TAGGTGACAC TATAGAATCt cgacnnGTCA CCCCTAGAGT
 51 CGAGCTGTGA CGGTCCTTAC AATGAAATGC ANCTGGGTTA TCTTCTTCCT
 101 GATGGCAGGG GTTACAGGTA AGGGGCTCCC AAGTCCCAA CTTGAGGGTC
 151 CATAAACTCT GTGACAGTGG CAATCACTTT GCCTTTCTTT CTACAGGGGT
 201 GAATTCGGCT TTCACAGAGC ATTCACCGCT GACCCCTCAC CGTCGGGACC
 251 TCTGTAGCCG CTCTATCTGG CTAGCAAGGA AGATTCGTTC AGACCTTGAC
 301 TGCTCTTACG GAATCCTATG TAAGTTGCCT ATTTTGCTGT TATCTGTTTT
 351 CCCTTCATCT TTTTGTATCC AGCAACTTAC CATCACGCAT CAGCTCCATT
 401 ACCAATTGTG AAAGCTCTAA TCATATAGTC ATTCATATAG GTTATTTGAC
 451 ATGGGCCCTT CCCTTGAGGA AACCCATGTG ACTTTATTTT CTTCTCTGG
 501 GCTGTTTAGG AGATGAAGTT ACTTGAATGA GAAAATATAT ATGGAGTTCT
 551 AGAAAGGATT GGTTTATATG TCTTGAGGC TATTTCAAAA TTTATTTGGC
 601 CATATATTCT GAATACTACC TAGAACAGAT TAGCCATGGG CCCTNTGGGT
 651 TNTTCATAAG CCATGTCTT GAANTTTTTT AGCTTTGTAA ATGAAAGGT
 701 TATGGGATAG GAAGAGTNCT ATGAACGTGG GAGGAATTG TAAATCCTAC
 751 CAATTNTNC TATATAGCAT TAGCCCCAC CTTTANTAT TCTGCATCAA
 801 AAGTAAGATT GTGTCTAAAG AGAAAGGTNA GCTATCAAAA GGACTCCTAT
 851 AANATTCNTT GGAACTTNT GGAANTGTCA AATTTNTTTG AGCTAATTNT
 901 TGGAGTTCCA AANTTTGTCT TNTNACAGTN AAGGGGGANC CCCATTCANA
 951 TTNCCCCC TNNNGANAAT GCTTGGGGGA AAAAACCTNC CAACCCNTT
 1001 GTGGGANGAA GTTTTTTAA NNTTTTAAGG CTNGNNGAAA CNGGNTTTA
 1051 ATTTTTTGGG NCNANGCCT NTCCCCGGTA CCAGGAAAAT CAGGACCTNT
 1101 TTTTGGGGNN GNGCNCNAC NGGGGGGNA AANGGGAAAT TTCNTCANAA
 1151 AAAATCTTTT CCGnnnnnng tgaagcatca gggcctgaac aagaacatca
 1201 acctggactc tgcggatggg atgccagtgg caagcactga tcagtggagt
 1251 gagctgaccg aggcagagcg actccaagag aaccttcaag cttatcgtac

- 30/56 -

1301 cttccatggt ttgttggtcca ggctcttaga agaccagcag gtgcatttta
1351 ccccaaccga aggtgacttc catcaageta tacataccct tcttctccaa
1401 gtcgctgcct ttgcatacca gatagaggag ttaatgatac tcctggaata
1451 caagatcccc cgcaatgagg ctgatgggat gcctattaat gttggagatg
1501 gtggtctctt tgagaagaag ctgtggggcc taaagggtgt gcaggagctt
1551 tcacagtgga cagtaaggtc catccatgac cttegtttca tttcttctca
1601 tcagactggg atcccagcac gtgggagcca ttatattgct aacaacaaga
1651 aaatgtagnn nnngcgccct GCGCCGTCTT TCCCGACGTT AAAGGGATGA
1701 AACCACAAGA CTTACCTTCG CTCGGAAGTA AAACGACAAA CACACACAGT
1751 TTTGCCCGTT TTCATGAGAA ATGGGACGTC TCGCACGAA ACGCGCCGTC
1801 GCTTGAGGAG GACTTGTACA AACACGATCT ATGCAGGTTT CCCCAACTGA
1851 CACAAACCGT GCAACTTGAA ACTCCGCCTG GTCTTTCCAG GTCTAGAGGG
1901 GTAACATTTT GTACTGTGTT TGAATCCACG CTCGATCCAC TAGCGAGTGT
1951 TAGTAGCGGT ACTGCTGTCT CGTAGCGGAG CATGTTGGCC GTGGGAACAC
2001 CTCCTTGGTA ACAAGGACCC ACGGGGCCGA AAGCCATGTC CTAACGGACC
2051 CAACATGTGT GCAACCCAG CACGGCAGCT TTAATGTGAA ACCCACTTCA
2101 AGGTGACATT GATACTGGTA CTCAAACACT GGTGACAGGC TAAGGATGCC
2151 CTTGAGGTAC CCGAGGTAA CAAGCGACAC TCGGGATCTG AGAAGGGGAC
2201 TGGGACTTCT TTAAAGTGCC CAGTTTAAA AGCTTCTACG CCTGAATAGG
2251 TGACCGGAGG CCGGCACCTT TCCTTTTATA ACCACTGAAC ACATGGAAGA
2301 CGCCAAAAAC ATAAAGAAAG GCCCGGCGCC ATTCTATCCT CTAGAGGATG
2351 GAACCGCTGG AGAGCAACTG CATAAGGCTA TGAAGAGATA CGCCCTGGTT
2401 CCTGGAACAA TTGCTTTTAC AGATGCACAT ATCGAGGTGA ACATCACGTA
2451 CGCGGAATAC TTCGAAATGT CCGTTCGGTT GGCAGAAGCT ATGAAACGAT
2501 ATGGGCTGAA TACAAATCAC AGAATCGTCT TATGCAGTGA AAATCTCTT
2551 CAATTCTTTA TGCCGGTGTG GGGCGCGTTA TTTATCGGAG TTGCAGTTGC
2601 GCCCGCGAAC GACATTTATA ATGAACGTGA ATTGCTCAAC AGTATGAACA
2651 TTTGCGAGCC TACCGTAGTG TTTGTTTCCA AAAAGGGGTT GCAAAAAATT

- 31/56 -

2701 TTGAACGTGC AAAAAAATT ACCAATAATC CAGAAAATTA TTATCATGGA
 2751 TTCTAAAACG GATTACCAGG GATTTTCAGTC GATGTACACG TTCGTCACAT
 2801 CTCATCTACC TCCCGGTTTT AATGAATACG ATTTTGTACC AGAGTCCTTT
 2851 GATCGTGACA AAACAATTGC ACTGATAATG AATTCCTCTG GATCTACTGG
 2901 GTTACCTAAG GGTGTGGCCC TTCCGCATAG AACTGCCTGC GTCAGATTCT
 2951 CGCATGCCAG AGATCCTATT TTTGGCAATC AAATCATTCC GGATACTGCG
 3001 ATTTTAAGTG TTGTTCCATT CCATCACGGT TTTGGAATGT TTAATACACT
 3051 CGGATATTTG ATATGTGGAT TTCGAGTCGT CTTAATGTAT AGATTTGAAG
 3101 AAGAGCTGTT TTTACGATCC CTCAGGATT ACAAATTCA AAGTGCCTTG
 3151 CTAGTACCAA CCCTATTTTC ATTCTTCGCC AAAAGCACTC TGATTGACAA
 3201 ATACGATTTA TCTAATTAC ACGAAATTGC TTCTGGGGGC GCACCTCTTT
 3251 CGAAAGAAGT CGGGGAAGCG GTTGCAAAAC GCTTCCATCT TCCAGGGATA
 3301 CGACAAGGAT ATGGGCTCAC TGAGACTACA TCAGCTATTC TGATTACACC
 3351 CGAGGGGGAT GATAAACCGG GCGCGGTCCG TAAAGTTGTT CCATTTTTTG
 3401 AAGCGAAGGT TGTGGATCTG GATACCGGGA AAACGCTGGG CGTTAATCAG
 3451 AGAGGCGAAT TATGTGTCAG AGGACCTATG ATTATGTCCG GTTATGTAAA
 3501 CAATCCGGAA GCGACCAACG CCTTGATTGA CAAGGATGGA TGGCTACATT
 3551 CTGGAGACAT AGCTTACTGG GACGAAGACG AACACTTCTT CATAGTTGAC
 3601 CGCTTGAAGT CTTTAATTAA ATACAAAGGA TATCAGGTGG CCCCCGCTGA
 3651 ATTGGAATCG ATATTGTTAC AACACCCCAA CATCTTCGAC GCGGGCGTGG
 3701 CAGGTCTTCC CGACGATGAC GCCGGTGAAC TTCCCGCCGC CGTTGTTGTT
 3751 TTGGAGCACG GAAAGACGAT GACGGAAAAA GAGATCGTGG ATTACGTCGC
 3801 CAGTCAAGTA ACAACCGCGA AAAAGTTGCG CGGAGGAGTT GTGTTTGTGG
 3851 ACGAAGTACC GAAAGGTCTT ACCGGAAAAC TCGACGCAAG AAAAATCAGA
 3901 GAGATCCTCA TAAAGGCCAA GAAGGGCGGA AAGTCCAAAT TGTAATAATG
 3951 AACTGTATTC AGCGATGACG AAATTCTTAG CTATTGTAAT GACTCTAGAG
 4001 GATCTTTGTG AAGGAACCTT ACTTCTGTGG TGTGACATAA TTGGACAAAC
 4051 TACCTACAGA GATTAAAGC TCTAAGGTAA ATATAAAATT TTAAAGTGTA

- 32/56 -

4101 TAATGTGTTA AACTACTGAT TCTAATTGTT TGTGTATTTT AGATTCCAAC
 4151 CTATGGAAGT GATGAATGGG AGCAGTGGTG GAATGCCTTT AATGAGGAAA
 4201 ACCTGTTTTG CTCAGAAGAA ATGCCATCTA GTGATGATGA GGCTACTGCT
 4251 GACTCTCAAC ATTCTACTCC TCCAAAAAAG AAGAGAAAGG TAGAAGACCC
 4301 CAAGGACTTT CCTTCAGAAT TGCTAAGTTT TTTGAGTCAT GCTGTGTTTA
 4351 GTAATAGAAC TCTTGCTTGC TTTGCTATTT ACACCACAAA GGAAAAAGCT
 4401 GCACTGCTAT ACAAGAAAAT TATGGAAAAA TATTCTGTAA CCTTTATAAG
 4451 TAGGCATAAC AGTTATAATC ATAACATACT GTTTTTTCTT ACTCCACACA
 4501 GGCATAGAGT GTCTGCTATT AATAACTATG CTCAAAAATT GTGTACCTTT
 4551 AGCTTTTTTA TTTGTAAAGG GGTTAATAAG GAATATTTGA TGTATAGTGC
 4601 CTTGACTAGA GATCATAATC AGCCATACCA CATTGTAGA GGTTTTACTT
 4651 GCTTTAAAAA ACCTCCCACA CCTCCCCCTG AACCTGAAAC ATAAATGAA
 4701 TGCAATTGTT GTTGTTAACT TGTTTATTGC AGCTTATAAT GGTTACAAAT
 4751 AAAGCAATAG CATCACAAT TTCACAAATA AAGCATTTTT TCACTGCAT
 4801 TCTAGTTGTG GTTTGTCCAA ACTCATCAAT GTATCTTATC ATGTCTGGAT
 4851 CCCCgggTCC CTATAGTGAG TCGTATTAGC TTGGCGTAAT CATGGTCATA
 4901 GCTGTTTCCT GTGTGAAATT GTTATCCGCT CACAATTCCA CACAACATAC
 4951 GAGCCGGAAG CATAAAGTGT AAAGCCTGGG GTGCCTAATG AGTGAGCTAA
 5001 CTCACATTAA TTGCGTTGCG CTCACTGCCC GCTTTCCAGT CGGGAAACCT
 5051 GTCGTGCCAG CTGCATTAAT GAATCGGCCA ACGCGCGGGG AGAGGCGGTT
 5101 TGCGTATTGG GCGCTCTTCC GCTTCCTCGC TCACTGACTC GCTGCGCTCG
 5151 GTCGTTCCGC TGCGGCGAGC GGTATCAGCT CACTCAAAGG CGGTAATACG
 5201 GTTATCCACA GAATCAGGGG ATAACGCAGG AAAGAACATG TGAGCAAAAG
 5251 GCCAGCAAAA GGCCAGGAAC CGTAAAAAGG CCGCGTTGCT GGCGTTTTTC
 5301 CATAGGCTCC GCCCCCTGA CGAGCATCAC AAAAATCGAC GCTCAAGTCA
 5351 GAGGTGGCGA AACCCGACAG GACTATAAAG ATACCAGGCG TTTCCCCCTG
 5401 GAAGCTCCCT CGTGCGCTCT CCTGTCCGA CCCTGCCGCT TACCGGATAC
 5451 CTGTCCGCTT TTCTCCCTTC GGGAAGCGTG GCGCTTTCTC AATGCTCAGC

- 33/56 -

5501 CTGTAGGTAT CTCAGTTCGG TGTAGGTCGT TCGCTCCAAG CTGGGCTGTG
5551 TGCACGAACC CCCCGTTCAG CCCGACCGCT GCGCCTTATC CGGTAACATAT
5601 CGTCTTGAGT CCAACCCGGT AAGACACGAC TTATCGCCAC TGGCAGCAGC
5651 CACTGGTAAC AGGATTAGCA GAGCGAGGTA TGTAGGCGGT GCTACAGAGT
5701 TCTTGAAGTG GTGGCCTAAC TACGGCTACA CTAGAAGGAC AGTATTTGGT
5751 ATCTGCGCTC TGCTGAAGCC AGTTACCTTC GGAAAAGAG TTGGTAGCTC
5801 TTGATCCGGC AAACAAACCA CCGCTGGTAG CGGTGGTTTT TTTGTTTGCA
5851 AGCAGCAGAT TACGCGCAGA AAAAAAGGAT CTCAAGAAGA TCCTTTGATC
5901 TTTTCTACGG GGTCTGACGC TCAGTGGAAC GAAAACTCAC GTTAAGGGAT
5951 TTTGGTCATG AGATTATCAA AAAGGATCTT CACCTAGATC CTTTTAAATT
6001 AAAAAATGAAG TTTTAAATCA ATCTAAAGTA TATATGAGTA AACTTGGTCT
6051 GACAGTTACC AATGCTTAAT CAGTGAGGCA CCTATCTCAG CGATCTGTCT
6101 ATTTTCGTTCA TCCATAGTTG CCTGACTCCC CGTCGTGTAG ATAACTACGA
6151 TACGGGAGGG CTTACCATCT GGCCCCAGTG CTGCAATGAT ACCGCGAGAC
6201 CCACGCTCAC CGGCTCCAGA TTTATCAGCA ATAAACCAGC CAGCCGGAAG
6251 GGCCGAGCGC AGAAGTGGTC CTGCAACTTT ATCCGCCTCC ATCCAGTCTA
6301 TTAATTGTTG CCGGGAAGCT AGAGTAAGTA GTTCGCCAGT TAATAGTTTG
6351 CGCAACGTTG TTGCCATTGC TACAGGCATC GTGGTGTAC GCTCGTCGTT
6401 TGGTATGGCT TCATTAGCT CCGGTTCCCA ACGATCAAGG CGAGTTACAT
6451 GATCCCCCAT GTTGTGCAAA AAAGCGGTTA GCTCCTTCGG TCCTCCGATC
6501 GTTGTGAGAA GTAAGTTGGC CGCAGTGTTA TCACTCATGG TTATGGCAGC
6551 ACTGCATAAT TCTCTTACTG TCATGCCATC CGTAAGATGC TTTTCTGTGA
6601 CTGGTGAGTA CTCAACCAAG TCATTCTGAG AATAGTGTAT GCGGCGACCG
6651 AGTTGCTCTT GCCCGGCGTC AATACGGGAT AATACCGCGC CACATAGCAG
6701 AACTTTAAAA GTGCTCATCA TTGGAAAACG TTCTTCGGGG CGAAAACCTC
6751 CAAGGATCTT ACCGCTGTTG AGATCCAGTT CGATGTAACC CACTCGTGCA
6801 CCCAACTGAT CTTGAGCATC TTTTACTTTC ACCAGCGTTT CTGGGTGAGC
6851 AAAACAGGA AGGCAAAATG CCGCAAAAAA GGAATAAGG GCGACACGGA

Fig. 20

JCVPshort-hgdnf Length: 6565 June 8, 1999 16:57 Type: N Check:

1	GCTAGCGATT	TAGGTGACAC	TATAGAATAG	ATCCCCATGA	AGTTATGGGA
51	TGTCGTGGCT	GTCTGCCTGG	TGCTGCCTCA	CACCGCGTCC	GCCTTCCC GC
101	TGCCCGCCGG	TAAGAGGCCT	CCCCAGGCGC	CCGCGCAAGA	CCGCTCCCTC
151	GGCCGCCGCG	CGCGCGCCTT	CGCGCTGAGC	ACGTACTCAA	ATATGCCAGA
201	GGATTATCCT	GATCAGTTCG	ATGATGTCAT	GGATTTTATT	CAAGCCACCA
251	TTAAAGAGCT	GAAGAGGTCA	CCAGATAAAC	AAATGGCAGT	GCCTCCTAGA
301	AGAGAGCGGA	ATCGGCAGGC	TGCAGCTGCC	AACCCAGAGA	ATTCAGGAGG
351	AAAAGGTCGG	AGAGGCCAGA	GGGGCAAAAA	CCGGGGTTGT	GTCTTAACTG
401	CAATACATTT	AAATGTCACT	GACTTGGGTC	TGGGCTATGA	AACCAAGGAG
451	GAACTGATTT	TTAGGTACTG	CACCGGCTCT	TGCGATGCAG	CTGAGACAAC
501	GTACGACAAA	ATATTGAAAA	ACTTATCCAG	AAATAGAAGG	CTGGTGAGTG
551	ACAAAGTAGG	GCAGGCATGT	TGCAGACCCA	TCGCCTTTGA	TGATGACCTG
601	TCGTTTTTAT	ATGATAACCT	GGTTTACCAT	ATTCTAAGAA	AGCATTTCCG
651	TAAAAGGTGT	GGATGTATCT	GACTGGTGCG	CCGTCTTTCC	CGACGTTAA
701	GGGATGAAAC	CAAGAGACTT	ACCTTCGCTC	GGAGTAAAA	GCACAAACG
751	ACACAGTTTT	GCCCGTTTTT	ATGAGAAATG	GGACGTCTGC	GCACGAAACG
801	CCCGCTCGCT	TGAGGAGGAC	TTGTACAAC	ACGATCTATG	CAGGTTTCCC
851	CAGCTGCAC	AAACCGTGCA	ACTTGAACCT	CGCGCTGGTC	TTTCCAGGTC
901	TAGAGGGGTA	ACATTTTGTA	CTGTGTTTGA	CTCCACGCTC	GATCCACTAG
951	CGAGTGTTAT	TAGCGGTACT	GCTGTCTCGT	AGCGGAGCAT	GTTGGCCGTG
1001	GGAACACCTC	CTTGGTAACA	AGGACCCAGT	GGGGCGAAAG	CCATGTCCCTA
1051	ACGACCCCAA	CATGTGTGCA	ACCCAGCAC	GGCAGCTTTA	CTGTGAAACC
1101	CACTTCAAGG	TGACATTGAT	ACTGGTACTC	AAACACTGGT	GACAGGCTAA
1151	GGATGCCCTT	CAGGTACCCC	GAGGTAACAA	GCGACACTCG	GGATCTGAGA
1201	AGGGGACTGG	GACTTCTTTA	AAGTGCCAC	TTTAAAAAGC	TTCTACGCCCT
1251	GAATAGGTGA	CCGGAGGCCG	GCACCTTTCC	TTTTATABAC	ACTGAACACA
1301	TGGAAGACGC	CAAAAACATA	AAGAAAGGCC	CGGCGCCATT	CTATCCTCTA
1351	GAGGATGGAA	CCGCTGGAGA	GCAACTGCAT	AAGGCTATGA	AGAGATACGC
1401	CCTGGTTCCCT	GGACAATATG	CTTTTACAGA	TGCACATATC	GAGGTGAACA
1451	TCACGTACATG	GGAACTACTT	GAAATGTCCG	TTCGGTTGGC	AGAAGCTATG
1501	AAACGCATATG	GGCTGAATAT	AAATCAGAGA	ATCCGCTGAT	CGAGTGAAAA
1551	CTCTCTTCAA	TTCTTTATGC	CGGTTGTTGG	CGCGTTATTT	ATCGGAGTTG
1601	CAGTTGCGCC	CGCGAACGAC	ATTTATAATG	ACCGTGAAAT	GCTCAACAGT
1651	ATGAACATTT	CGCAGCCTAC	CGTAGTGTTT	GTTTCCAAAA	AGGGGTGGA
1701	AAAAATTTTG	AACGTGCAAA	AAAAATTACC	AATAATCCAG	AAAAATTATTA
1751	TCATGGATTCT	TAAACCGGAT	TACCGGGAT	TTTCAGTCAT	GTACACGGTT
1801	GTCACATCTC	ATCTACCTCC	CGGTTTTAAT	GAATACGATT	TTGTACCAGA
1851	GTCTTTTGAT	CGTGACAAAA	CAATTGTCAT	GATATGAAT	TCCTCTGGAT
1901	CTACTGGGTT	ACCTAAGGGT	TGGCGCTTC	CGCATAGAAC	TGCTGCGCTC
1951	AGATTCTCGC	ATGCCAGAGA	TCCTATTTTT	GGCAATCAAA	TCATTCCGGA
2001	TACTGCGATT	TTAAGTGTTG	TTCCATTCCA	TCACGGTTTT	GGAATGTTTA
2051	CTACTCTCGG	ATATTTGATA	TGTGGATTTC	GAGTCGTCTT	AATGTATAGA
2101	TTTGAAGAAG	AGCTGTTTTT	ACGATCCCTT	CAGGATTACA	AAATTCAAAG
2151	TGCGTTGCTA	GTACCAACCC	TATTTTCATT	CTTCGCCAAA	AGCACTCTGA
2201	TTGACAAATA	CGATTATATCT	AATTTACAGT	AAATTGCTTC	TGGGGGCGCA
2251	CCTCTTTTCA	AAGAAGTCGG	GGAAGCGGTT	GCAAAACGCT	TGCATCTTCC
2301	AGGGATACGA	CAAGGATATG	GGCTCACTGA	GACTACATCA	GCTATTCTGA
2351	TTACACCCGA	GGGGATGAT	AAACCGGGCG	CGGTCCGTTA	AGTTGTTCCA
2401	TTTTTTGAAG	CGAAGTTGTG	GGATCTGGAT	ACCGGAAAA	CGCTGGGCGT
2451	TAATCAGAGA	GGCGAATTAT	GTGTCAGAGG	ACTATGATT	ATGTCCGGTT
2501	ATGTAACCTA	TCCGGAAGCG	ACCAACGCCCT	TGATTGACAA	GGATGGATGG
2551	CTACATTCTG	GAGACATAGC	TTACTGGGAC	GAAAGCAAC	ACTTCTTCTC
2601	AGTTGACCGC	TGGAAGTCTT	TAAATTAATA	CAAAGGATAT	CAGGTGGCCC
2651	CCGCTGAATT	GGAATCGATA	TTGTTACAAC	ACCCCAACAT	CTTCGACGCG
2701	GGCGTGGCAG	GTCTTCCCGA	CGATGACGCC	GGTGAACCTC	CCGCCGCCGT
2751	TGTTGTTTTG	GAGCAGCGAA	AGACGATGAC	GGAAAAAGAG	ATCGTGGATT
2801	ACGTCCGCCAG	TCAAGTAACA	ACCGCGAAAA	AGTTGCGCGG	AGGAGTTGTG
2851	TTTGTGGACG	AAGTACCGAA	AGGTCTTACC	GGAAAACTCG	ACGCAAGAAA
2901	AATCAGAGAG	ATCTTCATAA	AGGCCAAAGAA	CCCGGGAAGG	TCCAAATTTG
2951	AAAATGTAAAC	TGTATTACAG	GATGACGAAA	TCTTAGCTA	TTGATAATGAC
3001	TCTAGAGGAT	CTTTGTGAAG	GAACTTACT	TCTGTGGTGT	GACATAATTG
3051	GACAAACTAC	TGTCAGAGAT	TTAAAGCTCT	AAGGTAATA	TAAATTTTTT
3101	AAGTGATATA	CTGTGTAAC	TACTGATTCT	AATTGTTTGT	GTATTTTTGA
3151	TTCCAACCTA	TGGAACCTGAT	GAATGGGAGC	AGTGGTGGAA	TGCCTTTAAT

Fig. 21

- 36/56 -

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3201 GAGGAAAACC TGTTTTGCTC AGAAGAAATG CCATCTAGTG ATGATGAGGC
3251 TACTGCTGAC TCTCAACATT CTACTCCTCC AAAAAAGAAG AGAAAGGTAG
3301 AAGACCCCAA GGACTTTCCT TCAGAATTGC TAAGTTTTTT GAGTCATGCT
3351 GTGTTTAGTA ATAGAACTCT TGCTTGCTTT GCTATTTACA CCACAAAGGA
3401 AAAAGCTGCA CTGCTATACA AGAAAATTAT GAAAAAATAT TCTGTAACCT
3451 TTATAAGTAG GCATAACAGT TATAATCATA ACATACTGTT TTTTCTTACT
3501 CCACACAGGC ATAGAGTGTC TGCTATTAAT AACTATGCTC AAAAATTGTG
3551 TACCTTTAGC TTTTAAATTT GTAAAGGGGT TAATAAGGAA TATTTGATGT
3601 ATAGTGCCTT GACTAGAGAT CATAATCAGC CATACCACAT TTGTAGAGGT
3651 TTTACTTGCT TTA AAAAACC TCCCACACCT CCCCTGAAC CTGAAACATA
3701 AAATGAATGC AATTGTTGTT GTTAAC TTGTTATTGTCAGC TTATAATGGT
3751 TACAAATAAA GCAATAGCAT CACAAATTC ACAAATAAAG CATTTTTTTC
3801 ACTGCATTCT AGTTGTGGTT TGTCCTAACT CATCAATGTA TCTTATCATG
3851 TCTGGATCCC CGGCTCCCTA TAGTGAGTCG TATTAGCTTG GCGTAATCAT
3901 GGTCAATAGCT GTTTCCTGTG TGAATTTGTT ATCCGCTCAC AATTCCACAC
3951 AACATACGAG CCGGAAGCAT AAAGTGTAAG GCCTGGGGTG CCTAATGAGT
4001 GAGCTAACTC ACATTAATTG CGTTGCGCTC ACTGCCCGCT TTCCAGTCGG
4051 GAAACCTGTC GTGCCAGCTG CATTAATGAA TCGGCCAACG CGCGGGGAGA
4101 GCGGTTTGGC GTATTGGGCG CTCTTCGCTC TCCTCGCTCA CTGACTCGCT
4151 GCGCTCGGTC GTTCGGCTGC GCGCAGCGGT ATCAGCTCAC TCAAAGGCGG
4201 TAATACGGTT ATCCACAGAA TCAGGGGATA ACGCAGGAAA GAACATGTGA
4251 GCAAAAGGCC AGCAAAAGGC CAGGAACCGT AAAAAGGCCG CGTTGCTGGC
4301 GTTTTTCCAT AGGCTCCGCC CCCCTGACGA GCATCACAAA AATCGACGCT
4351 CAAGTCAGAG GTGGCGAAAC CCGACAGGAC TATAAAGATA CCAGGCGTTT
4401 CCCCCTGGAA GCTCCCTCGT GCGCTCTCCT GTTCCGACCC TGCCGCTTAC
4451 CCGATACCTG TCCGCTTTTC TCCCTTCGGG AAGCGTGGCG CTTCTCAAT
4501 GCTCACGCTG TAGGTATCTC AGTTCGGTGT AGGTTCGTTG CTCCAAGCTG
4551 GCGTGTGTGC ACGAACCCCC CGTTCAGCCC GACCGCTGCG CCTTATCCGG
4601 TAATATCGTT CTTGAGTCCA ACCCGTAAG ACACGACTTA TCGCCACTGG
4651 CAGCAGCCAC TGGTAACAGG ATTAGCAGAG CGAGGTATGT AGGCGGTGCT
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4751 ATTTGGTATC TGCGCTCTGC TGAAGCCAGT TACCTTCGGA AAAAGAGTTG
4801 GTAGCTCTTG ATCCGGCAAA CAAACCACCG CTGGTAGCGG TGGTTTTTTT
4851 GTTTGCAAGC AGCAGATTAC GCGCAGAAAA AAAGGATCTC AAGAAGATCC
4901 TTTGATCTTT TCTACGGGGT CTGACGCTCA GTGGAACGAA AACTCACGTT
4951 AAGGGATTTT GGTCAAGAGA TTATCAAAAA GGATCTTCAC CTAGATCCTT
5001 TTAATATAAA AATGAAGTTT TAAATCAATC TAAAGTATAT ATGAGTAAAC
5051 TTGGTCTGAC AGTTACCAAT GCTTAATCAG TGAGGCACCT ATCTCAGCGA
5101 TCTGTCTATT TCGTTCATCC ATAGTTGCCT GACTCCCGT CGTGTAGATA
5151 ACTACGATAC GGGAGGGCTT ACCATCTGGC CCCAGTGCTG CAATGATACC
5201 GCGAGACCCA CGCTCACC GGCTCCAGATT ATCAGCAATA AACCAGCCAG
5251 CCGGAAGGGC CGAGCGCAGA AGTGGTCCTG CAACTTTATC CGCCTCCATC
5301 CAGTCTATTA ATTGTTGCCG GGAAGCTAGA GTAAGTAGTT CGCCAGTTAA
5351 TAGTTTGGC AACGTTGTTG CCATTGCTAC AGGCATCGTG GTGTCACGCT
5401 CGTCTGTTGG TATGGCTTCA TTCAGCTCCG GTTCCCAACG ATCAAGGCGA
5451 GTTACATGAT CCCCATGTT GTGCAAAAAA GCGGTTAGCT CCTTCGGTCC
5501 TCCGATCGTT GTGAGAAGTA AGTTGGCCCG AGTGTTATCA CTCATGGTTA
5551 TGGCAGCACT GCATAATTCT CTTACTGTCA TGCCATCCGT AAGATGCTTT
5601 TCTGTGACTG GTGAGTACTC AACCAGTCA TTCTGAGAAT AGTGATGCG
5651 GCGACCGAGT TGCTCTTGCC CGGCTCAAT ACGGGATAAT ACCGCGCCAC
5701 ATAGCAGAAC TTTAAAAGTG CTCATCATTG GAAAACGTTT TCGGGGCGA
5751 AAACCTCTCA GATCTTACC GCTGTTGAGA TCCAGTTCGA TGTAAACCCAC
5801 TCGTGACACC AACTGATCTT CAGCATCTTT TACTTTTACC AGCGTTTCTG
5851 GGTGAGCAAA AACAGGAAGG CAAAATGCCG CAAAAAAGGG AATAAGGGCG
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5951 CATTTATCAG GGTATTGTC TCATGAGCGG ATACATATTT GAATGTATTT
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6101 CCGTATCACG AGGCCCTTTC GTCTCGCGCG TTTCGGTGAT GACGGTGAAA
6151 ACCTCTGACA CATGCAGCTC CCGGAGACGG TCACAGCTTG TCTGTAAGCG
6201 GATGCCGGGA GCAGACAAGC CCGTCAGGGC GCGTCAGCGG GTGTTGGCGG
6251 GTGTCGGGCT TCCCTTACT ATGCGGCATC AGAGCAGATT GTACTGAGAG
6301 TGCACCATAT GCGGTGTGAA ATACCGCACA GATGCGTAAG GAGAAAATAC
6351 CGCATCAGGC GCCATTGCCC ATTCAGGCTG CGCAACTGTT GGGAAAGGGCG
6401 ATCGTGGCGG GCCTCTTCGC TATTACGCCA GCTGGCGAAA GGGGGATGTG
6451 CTGCAAGGCG ATTAAGTTGG GTAACGCCAG GGTTTTCCCA GTCACGACGT
6501 TGTA AACGA CGGCCAGTGA ATTTGACCT CGAGtcgact ttttttatat

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Fig. 21

- 37/56 -

6551 atacaggagg ccgag

Fig. 21

Fig. 22

3201 ACCGCTCAAC TCGGCCATGC GCGGGCCGAT CTCGGCGAAC ACCGCCCCCG
3251 CTTTCGACGCT CTCCGGCGTG GTCCAGACCG CCACCGCGGC GCCGTCGTCC
3301 GCGACCCACA CCTTGCCGAT GTCGAGCCCG ACGCGCGTGA GGAAGAGTTC
3351 TTGCAGCTCG GTGACCCGCT CGATGTGGCG GTCCGGATCG ACGGTGTGGC
3401 GCGTGGCGGG GTAGTCGGCG AACGCGCGCG CGAGGGTGGC TACGGCCCTG
3451 GGGACGTCGT CGCGGGTGGC GAGGCGCACC GTGGGCTTGT ACTCGGTCAT
3501 GGTAAGCTGA TCCGGCCGCG GCCTAGAGAA GGAGTGAGGG CTGGATAAAG
3551 GGAGGATTGA GCGGGGTCG AAAGAGGAGG TTCAAGGGGG AGAGACGGCG
3601 CGGATGGAAG AAGAGGAGGC GGAGGCTTAG GGTGTACAAA GGGCTTGACC
3651 CAGGGAGGGG GGTCAAAAGC CAAGGCTTCC CAGGTCACGA TGTAGGGGAC
3701 CTGGTCTGGG TGTCATGCG GGCCAGGTGA AAAGACCTTG ATCTTAACCT
3751 GGGTGTATGAG GTCTCGGTTA AAGGTGCCGT CTCGCGGCCA TCCGACGTTA
3801 AAGGTTGGCC ATTCTGCAGA GCAGAAGGTA ACCCAACGTC TCTTCTTGAC
3851 ATCTACCGAC TGTTGTGAG CGAGCCGCTC GACATCTTTC CAGTGATCTA
3901 AGGTCAAACCT TAAGGGAGTG GTAACAGTCT GGCCCTAATT TTCAGACAAA
3951 TACAGAAACA CAGTCAGACA GAGACAACAC AGAACGATGC TGCAGCAGAC
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4051 GGGAATGTT TTAGGTTCTC GTCTCCTACC AGAACCACAT ATCTGACGG
4101 GGTCCGATTG CACATCGACT CCTTCTCTCA GGTCCGGCCA CAAAAACGGC
4151 CCCCAAAGTC CCTGGGACGT CTCCAGGGT TCGCGCCGGG TGTTCAGAAC
4201 TCGTCAGTTC CACCACGGGT CCGCCAGATA CAGAGCTAGT TAGCTAACTA
4251 GTACCGACGC AGGCGCATAA AATCAGTCAT AGACACTAGA CAATCGGACA
4301 GACACAGATA AGTTGCTGGC CAGCTTACCT CCCGGTGGTG GGTGGTGGT
4351 CCCTGGGCAG GGGTCTCCCG ATCCCGGACG AGCCCCAAA TGAAAGACCC
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4601 AGCGAACTGA TTGGTTAGTT CAAATAAGGC ACAGGGTCAT TTCAGGTCCT
4651 TGGGCGACCT TGGAAACATC TGATGGTTCT CTAGAACTG CTGAGGGCTG
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6101 GGTGGTTTGT TTGCCGGATC AAGAGCTACC AACTCTTTTT CCGAAGGTAA
6151 CTGGCTTCAG CAGAGCGCAG ATACCAAATA CTGTCTTCT AGTGTAGCCG
6201 TAGTTAGGCC ACCACTTCAA GAAGTCTGTA GCACCGCCTA CATACCTCGC
6251 TCTCTTAAGT CTGTTACCAAG TGGCTGCTGC CAGTGGCGAT AAGTCGTGTC
6301 TTACCGGGTT GGAATCAAGA CGATAGTTAC CGGATAAGGC GCAGCGGTGCG
6351 GGCTGAACGG GGGGTCGTG CACACAGCCC AGCTTGGAGC GAACGACCTA
6401 CACCGAACTG AGATACTTAC AGCGTGAGCT ATGAGAAAGC GCCACGCTTC
6451 CCGAAGGGAG AAAGGCGGAC AGGTATCCGG TAAGCGGCG GGTCCGAACA
6501 GGAGAGCGCA CGAGGAGGCT TCCAGGGGGA AACGCTGGT ATCTTTATAG

pRetroOFF-U19tsa58 Length: 8852

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1  TCGAGTTTAC CACTCCCTAT CAGTGATAGA GAAAAGTGAA AGTCGAGTTT
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101 CTATCAGTGA TAGAGAAAGT GAAAGTCGAG TTTACCACTC CCTATCAGTG
151 ATAGAGAAAA GTGAAAGTCG AGTTTACCAC TCCCTATCAG TGATAGAGAA
201 AAGTGAAGT CGAGTTTACC ACTCCCTATC AGTGATAGAG AAAAGTGAAG
251 TCGAGTTTAC CACTCCCTAT CAGTGATAGA GAAAAGTGAA AGTCGAGCTC
301 GGTACCCGGG TCGAGTAGGC GTGTACGGTG GGAGGCCTAT ATAAGCAGAG
351 CTCGTTTAGT GAACCGTCAG ATCGCCTGGA GACGCCATCC ACGCTGTTTT
401 GACCTCCATA GAAGACACCG GGACCGATCC AGCCTGCGGC CGCTTAATTA
451 AGTTTAAACG GATCCxxxxx xxxxxxatgc catctagtga tgatgaggct
501 actgctgact ctcaacattc tactcctcca aaaaagaaga gaaaggtaga
551 agacccaag gactttcctt cagaattgct aagttttttg agtcatgctg
601 gtgttttagt tagaactcct gcttgctttg ctattttacac cacaaaggaa
651 aaagctgcac tgctatacaa gaaaattatg gaaaaatatt ctgtaacctt
701 tataagtagg cataacagtt ataatacata cataactgttt tttcttactc
751 cacacaggca tagagtgtct gctattaata actatgctca aaaatttgtt
801 accctttagct ttttaatttg taaaggggtt aataagggaat atttgatgta
851 tagtgccttg actagagatc cattttctgt tattgaggaa agtttgccag
901 gtgggttaaa ggagcatgat tttaatccag aagaagcaga ggaactaaa
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3151 TGTAGGCCGT GTACCTAAAT GTACTTTTGC TCCATCGCGA TGACTTAGTA
3201 AAGCACATCT AAAACTTTTA GCGTTATTAC GTAAAAATC TTGCCAGCTT

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Fig. 23

3251 TCCCTTCTA AAGGGCAAAA GTGAGTATGG TGCCTATCTA ACATCTCAAT
3301 GGCTAAGGCG TCGAGCAAAG CCCGCTTATT TTTTACATGC CAATACAATG
3351 TAGGCTGCTC TACACCTAGC TTCTGGGCGA GTTTACGGGT TGTTAAACCT
3401 TCGATTCCGA CCTCATTAG CAGCTCTAAT GCGCTGTAA TCACTTTACT
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3501 AAAAAAGCCT CCTCACTACT TCTGGAATAG CTCAGAGGCC GAGGCGGCCT
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3601 GCGGAAGTGG GCGGAGTTAG GGGCGGGATG GCGGAGTTA GGGGCGGGAC
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3751 CTTTGCATAC TTCTGCCTGC TGGGAGCCT GGGGACTTTC CACACCCTAA
3801 CTGACACACA TTCCACAGGT CGACTAGATC GAATTCTCAA TTGTTTACG
3851 CGGCCCGATG CATGGGGTCG TGCCTCCTT TCGGTCGGGC GCTGCGGGTC
3901 TTGGGGCGGG CGTCAGGCAC CGGCTTGCG GGTCTATGAC CAGGTGCGGC
3951 GGTCCCTTCGG GCACTCGACG TCGGCGGTGA CCGTGAAGCC GAGCCGCTCG
4001 TAGAAGGGGA GGTTCGCGGG CGCGGAGGTC TCCAGGAAGG CGGGCACCCC
4051 GGGCGGCTCG GCCGCCCTCA CTCGGGGGAG CACGACGGCG CTGCCAGAGC
4101 CCTTCCCTGT GTGGTCGGGC GAGACGCCGA CCGTGGCCAG GAACCACGCG
4151 GGCTCCTTGG GCCGGTGGCG CGCCAGGAGG CTTTCCATCT GTTGCTGCGC
4201 GGCCAGCCGG GAACCGCTCA ACTCGGCCAT GCGCGGGCCG ATCTCGGCCG
4251 ACACCGCCCC CGCTTCGACG CTCTCCGGCG TGGTCCAGAC CGCCACCGCG
4301 CGGCCGTCGT CCGCGACCCA CACCTTGCCG ATGTCGAGCC CGACGCGCGT
4351 GAGGAAGAGT TCTTGCAGCT CGGTGACCCG CTCGATGTGG CGGTCCGGAT
4401 CGACGGTGTG GCGCGTGGCG GGGTAGTCGG CGAACGCGGC GCGGAGGGTG
4451 CGTACGGCCC TGGGGACGTC GTCGCGGGTG GCGAGGCGCA CCGTGGGCTT
4501 GTACTCGGTC ATGGTAAGCT GATCCGGCCG GCGCCTAGAG AAGGAGTGAG
4551 GGCTGGATAA AGGGAGGATT GAGGCGGGGT CGAAAGAGGA GGTCAAGGG
4601 GGAGAGACGG CGCGGATGGA AGAAGAGGAG GCGGAGGCTT AGGGTGATCA
4651 AAGGGCTTGA CCCAGGGAGG GGGGTCAAAA GCCAAGGCTT CCCAGGTCAC
4701 GATGTAGGGG ACCTGGTCTG GGTGTCCATG CCGGCCAGGT GAAAAGACCT
4751 TGATCTTAAC CTGGGTGATG AGGTCTCGGT TAAAGGTGCC GTCTCGCGGC
4801 CATCGCACGT TAAAGGTTGG CCATTCTGCA GAGCAGAAGG TAACCAACG
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5051 TCAGACGGAG GCGGGAAGT TTTTAGGTTT TCGTCTCCTA CCAGAACCAC
5101 ATATCTGACG GGGGTGCGAT TCCACATCGA CTCCCTTCCT CAGGTGCGGC
5151 CACAAAACAG GCCCCAAAG TCCCTGGGAG GTCTCCAGG GTTGCGGGCG
5201 GGTGTTTACA ACTCGTCAGT TCCACCACGG GTCCGCCAGA TACAGAGCTA
5251 GTTAGCTAAC TAGTACCGAC GCAGGCGCAT AAAATCAGTC ATAGACACTA
5301 GACAATCGGA CAGACACAGA TAAGTTGCTG GCCAGCTTAC CTCCCGGTGG
5351 TGGGTGCGTG GTCCCTGGGC AGGGGTCTCC CGATCCCGGA CGAGCCCCCA
5401 AATGAAAGAC CCCCCTGAC GGGTAGTCAA TCACTCAGAG GAGACCCTCC
5451 CAAGGAACAG CGAGACCACA AGTCGGATGC AACTGCAAGA GGGTTTTATT
5501 GATACACGGG TACCCGGGCG ACTCAGTCAA TCGGAGGACT GCGCCCCCGA
5551 GTGAGGGGTT GTGGGCTCTT TTATTGAGCT CGGGGAGCAG AAGCGCGCGA
5601 ACAGAAGCGA GAAGCGAAGT GATTGGTTAG TTCAAATAAG GCACAGGGTC
5651 ATTTAGGTC CTTGGGGCAC CCTGGAACA TCTGATGGTT CTCTAGAAAC
5701 TGCTGAGGGC TGGACCGCAT CTGGGGACCA TCTGTTCTTG GCCCTGAGCC
5751 GGGGAGGAA CTGCTTACCA CAGATATCCT GTTTGGCCCA TATTAGCTG
5801 TTCCATCTGT TCTTGGCCCT GAGCCGGGGC AGGAACTGCT TACCACAGAT
5851 ATCTGTTTG GCCCATATTG AGGCTGCAGG TGGCACTTTT CGGGGAAATG
5901 TCGCGGGAAC CCCTATTGTG TTATTTTCTT AAATACATTC AAATATGTAT
5951 CCGCTCATGA GACAATAACC CTGATAAATG CTTCAATAAT ATTGAAAAG
6001 GAAGAGTATG AGTATTCAAC ATTTCCGTGT CGCCCTTATT CCCTTTTTTG
6051 CGGCATTTTG CTTCTCTGTT TTTGCTCACC CAGAAACGCT GGTGAAAGTA
6101 AAAGATGCTG AAGATCAGTT GGGTGCACGA GTGGGTTACA TCGAACTGGA
6151 TCTCAACAGC GGTAAAGATC TTGAGAGTTT TCGCCCCGAA GAACGTTTTT
6201 CAATGATGAG CACTTTTAAA GTTCTGCTAT GTGGCGCGGT ATTATCCCGT
6251 GTTGACGCCG GCAAGAGCA ACTCGGTCGC CGCATACACT ATTCTCAGAA
6301 TGACTTGGTT GAGTACTCAC CACTCACAGA AAGCATCTT ACGGAAGGCA
6351 TGACAGTAAG AGAATTATGC AGTGCTGCCA TAACCATGAG TGATAACACT
6401 GCGGCCAACT TACTTCTGAC AACGATCGGA GGACCGAAGG AGCTAACCGC
6451 TTTTTTGCAC AACATGGGGG ATCATGTAAC TCGCCTTGAT CGTTGGGAAC
6501 CGGAGCTGAA TGAAGCCATA CCAAACGAC AGCGTGACAC CACGATGCCT
6551 GTAGCAATGS CAACAACGTT GCGCAAACTA TTAAGTGGCG AACTACTTAC

Fig. 23

- 43/56 -

6601 TCTAGCTTCC CGGCAACAAT TAATAGACTG GATGGAGGCG GATAAAGTTG
6651 CAGGACCACT TCTGCGCTCG GCCCTTCCGG CTGGCTGGTT TATTGCTGAT
6701 AAATCTGGAG CCGGTGAGCG TGGGTCTCGC GGTATCATTG CAGCACTGGG
6751 GCCAGATGGT AAGCCCTCCC GTATCGTAGT TATCTACACG ACGGGGAGTC
6801 AGGCAACTAT GGATGAACGA AATAGACAGA TCGCTGAGAT AGGTGCCTCA
6851 CTGATTAAGC ATTGGTAAC TGCAGACCAA GTTTACTCAT ATATACTTTA
6901 GATTGATTTG CGGCCGGCCG CAAACTTCAT TTTTAATTTA AAAGGATCTA
6951 GGTGAAGATC CTTTTTGATA ATCTCATGAC CAAAATCCCT TAACGTGAGT
7001 TTTCTGTTCCA CTGAGCGTCA GACCCCGTAG AAAAGATCAA AGGATCTTCT
7051 TGAGATCCTT TTTTCTGCG CGTAATCTGC TGCTTGCAAA CAAAAAACC
7101 ACCGCTACCA GCGGTGGTTT GTTTGCCGGA TCAAGAGCTA CCAACTCTTT
7151 TTCCGAAGGT AACTGGCTTC AGCAGAGCGC AGATACCAAA TACTGTCTTT
7201 CTAGTGTAGC CGTAGTTAGG CCACCACATC AAGAACTCTG TAGCACCGCC
7251 TACATACCTC GCTCTGCTAA TCCTGTACC AGTGGCTGCT GCCAGTGGCG
7301 ATAACTCGTG TCTTACCGGG TTGGACTCAA GACGATAGTT ACCGATAAG
7351 GCGCAGCGGT CGGGCTGAAC GGGGGGTTTC TGCACACAGC CCAGCTTGGA
7401 GCGAACGACC TACACCGAAC TGAGATACCT ACAGCGTGAG CTATGAGAAA
7451 GCGCCACGCT TCCCGAAGGG AGAAAGCGCG ACAGGTATCC GGTAAAGCGG
7501 AGGGTCGGAA CAGGAGAGCG CACGAGGGAG CTTCCAGGGG GAAACGCTG
7551 GTATCTTTAT AGTCCTGTCG GGTTCGCCA CCTCTGACTT GAGCGTCGAT
7601 TTTTGTGATG CTCGTCAGGG GGGCGGAGCC TATGGAAAAA CGCCAGCAAC
7651 GCGGCCCTTT TACGGTTCTT GGCCTTTTGC TGGCCTTTTG CTCACATGTT
7701 CTTTCTGCGG TTATCCCTG ATTCTGTGGA TAACCGTATT ACCGCTTTG
7751 AGTGAGCTGA TACCGCTGCG CGCAGCCGAA CGACCGAGCG CAGCGAGTCA
7801 GTGAGCGAGG AAGCGGAAGA GCGCCAATAC GCAAAACGCC TCTCCCCGCG
7851 CGTTGGCCGA TTCATTAATG CAACTATGGC CATTTAATGT AAATACTTAA
7901 GAAAAAAAC CAAATTAATT TTGATACATG CTGCATGTGA AGACCCCCGC
7951 TGACGGGTAG TCAATCACTC AGAGGAGACC CTCCAAGGC AGCGAGACCA
8001 CAAGTCCGAA ATGAAAGACC CCCGCTGACG GGTAGTCAAT CACTCAGAGG
8051 AGACCCCTCC AAGGAACAGC GAGACCACAA GTCGGATGCA ACTGCAAGAG
8101 GGTATTATTG ATACACGGGT ACCCGGGCGA CTCAGTCAAT CGGAGGACTG
8151 GCGCCCCGAG TGAGGGGTTG TGGGCTCTTT TATTGAGCTC GGGGAGCAGA
8201 AGCGCGCGAA CAGAAGCGAG AAGCGAAGT ATTGGTTAGT TCAAATAAGG
8251 CACAGGGTCA TTTCAGGTCC TTGGGGCACC CTGGAACAT CTGATGGTTC
8301 TCTAGAAACT GCTGAGGGCT GGACCGCATC TGGGGACCAT CTGTTCTTGG
8351 CCCTGAGCCG GGGCAGGAAC TGCTTACCAC AGATATCCTG TTTGGCCCAT
8401 ATTCAAGCTG TCCATCTGTT CTTGGCCCTG AGCCGGGGCA GGAAGTCTT
8451 ACCACAGATA TCCTGTTTGG CCCATATTCA GCTGTTCAT CTGTTCTTGA
8501 CCTTGATCTG AACTTCTCTA TTCTCAGTTA TGATTTTTTC CATGCCTTGC
8551 AAAATGGCGT TACTTAAGCT AGCAGATCTG CTAGCTTGCC AAACCTACAG
8601 GTGGGGTCTT TCATTCCCC CTTTTTCTGG AGACTAAATA AAATCTTTTA
8651 TTTTATGCGC ACATTCCCC GAAAAGTGCC ACCTGACGTC TAAGAAACCA
8701 TTATTATCAT GACATTAACC TATAAAAAA GCGGTATCAC GAGGCCCTTT
8751 CGTCCGCACA TTTCCCCGAA AAGTGCCACC TGACGTCTAA GAAACCATTA
8801 TTATCATGAC ATTAACCTAT AAAAAATAGG GTATCACGAG GCCCTTTCGT
8851 CC

Fig. 23

- 44/56 -

puhd10-3-hIL3 Length: 3621

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1   ctccgagttta ccactcccta tcagtgatag agaaaaagta aagtcgagtt
51  taccactccc  tatcagtgat agagaaaaagt gaaagtcgag tttaccactc
101 cctatcagtg  atagagaaaa gtgaaagtcg agtttaccac tccctatcag
151 tgatagagaa  aagtgaaggt cgagtttacc actccctatc agtgatagag
201 aaaagtgaag  gtcgagttta ccactcccta tcagtgatag agaaaaagta
251 aagtcgagtt  taccactccc  tatcagtgat agagaaaaagt gaaagtcgag
301 ctccggtaccc gggtcgagta ggcgtgtacg gtgggagggc tatataagca
351 gagctcggtt  agtgaaccgt cagatcgect ggagacgcca tccacgctgt
401 tttgacctcc  atagaagaca ccgggaccga tccagcctcc gcggccccga
451 attaaacagt  cgagctacgt caacgaaaaa taaaaatcaa acatgagccg
501 cctgcccgtc  ctgctcctgc tccaactcct ggtccgcccc ggactccaag
55: ctcccatgac  ccagacaacg tccttgaaga caagctgggt taactgctct
601 aacatgatcg  atgaaattat aacacactta aagcagccac ctttgccctt
651 gctggacttc  aacaacctca atggggaaga ccaagacatt ctgatggaaa
701 ataaccttcg  aaggccaaac ctggagggat tcaacagggc tgtcaagagt
751 ttacagaacg  catcagcaat tgagagcatt cttaaaaatc tccctgccatg
801 tctgccccct  gccacggccg caccacgcg  acatccaatc catatcaagg
851 accgtgactg  gaatgaattc cggaggaaac tgacgtttct tctgaaaacc
901 cttgagaatg  cgcaggctca acagacgact ttgagcctcg cgatctttta
951 gaactcgact  ctgacatgta taagatacat tgatgagttt ggacaaacca
1001 caactagaat  gcagtgaaaa aaatgcttta tttgtgaaat ttgtgatgct
1051 attgctttat  ttgtaacctatataagctgc aataaacaag ttaacaacaa
1101 caattgcatt  cattttatgt ttcaggttca gggggaggtg tgggaggttt
1151 tttaaagcaa  gtaaaacctc tacaaatgtg gtatggctga ttatgatcct
1201 gcaagcctcg  tctgtctggc ggaccacgct atctgtgcaa ggtccccgga
1251 cgcgcgctcc  atgagcagag cgcgcgcgcg cgaggcaaga ctccggcggc
1301 gcctgccccg  tcccaccagg tcaacaggcg gtaaccggcc tcttcacogg
1351 gaatgcgcgc  gaccttcagc atcgccggca tgtcccctgg cggacgggaa
1401 gtatcagctc  gaccaagctt ggcgagattt tcaggagcta aggaagctaa
1451 aatggagaaa  aaaatcactg gatataccac cgttgatata tcccaatggc
1501 atcgtaaaag  acattttgag gcatttcagt cagttgtctc atgtacctat
1551 aaccagaccg  ttcagctgca ttaatgaatc ggccaacgcg cggggagagg
1601 cggtttgctg  attggcgctt cttccgcttc ctcgctcact gactcgctgc
1651 gctcgggtcg  tcggtcgctg cgagcggtat cagctcactc aaagtcggta
1701 atacggttat  ccacagaatc aggggataac gcaggaaaag acatgtgagc
1751 aaaaaggcca  caaaaggcca ggaaccgtaa aaaggccgcg ttgctggcgt
1801 ttttccatag  gctccgcccc cctgacgagc atcacaaaaa tcgacgctca
1851 agtcagaggt  ggcgaaaacc gacaggacta taagataacc aggcgtttcc
1901 ccttggaagc  tccctcgctg cctctcctgt tccgacctg  ccgcttaccg
1951 gatacctgtc  cgcctttctc ccttcgggaa gcgtggcgct ttctcaatgc
2001 tcacgctgta  ggtatctcag ttcggtgtag gtctgtcgct ccaagctggg
2051 ctgtgtgcac  gaaccccccg ttcagcccca ccgctgcgcc ttatccggta
2101 actatcgtct  tgagtccaac ccgtaagac  acgacttatc gccactggaa
2151 gcagccactg  gtaacaggat tagcagagcg aggtatgtag gcggtgctac
2201 agagttcttg  aagtgggtgg ctaactacgg ctacactaga aggacagtat
2251 ttggtatctg  cgctctgctg aagccagtta ccttcggaaa aagagttggt
2301 agctcttgat  ccggcaaaac aaccacgcgt ggtagcggtg gttttttgt
2351 ttgcaagcag  cagattacgc gcagaaaaaa aggatctcaa gaagatcctt
2401 tgatcttttc  tacggggtct gacgctcagt ggaacgaaaa ctcacgttaa
2451 gggatttttg  tcatgagatt atcaaaaagg atcttcacct agatcctttt
2501 aaattaaaaa  tgaagtttta aatcaatcta aagtatatat gagtaaactt
2551 ggtctgacag  ttaccaatgc ttaatcagtg aggcacctat ctacgcgctc
2601 tttctatttc  gttcatccat agttgcctga ctccccctcg ttagataaac
2651 tacgatacgg  gagggcttac catctggccc cagtgtcgca atgataccgc
2701 gagacccacg  ctcaccggct ccagatttat cagcaataaa ccagccagcc
2751 ggaagggccg  agcgcagaag tggctcctgca actttatccg cctccatcca
2801 gtctattaat  ttgtgccggg aagctagagt aagtagttcg ccagttaata
2851 gtttgcgcaa  cgttggttgc attgctacag gcacgtgtgt gtcacgctcg
2901 tcgttttgta  tggcttcatt cagctccggt tcccaacgat caaggcgagt
2951 tccatgatcc  cccatgttgt gcaaaaaaagc ggttagctcc ttcggtcttc
3001 cgatcgttgt  cagaagtaag ttggccgcag tgttatcact catggttatg
3051 gcagcactgc  ataattctct tactgtcatg ccatccgtaa gatgcttttc
3101 tgtgactggg  gagtactcaa ccaagtcatt ctgagaatag tgtatgcggc
3151 gaccgagttg  ctcttgcccc tcgtcaatac gggataatac cgcgccacat
3201 agcagaactt  taaaagtgtc catcattgga aaacgttctt cggggcgaaa

```

Fig. 24

3251 actctcaagg atcttaccgc tgttgagatc cagttcgatg taaccaactc
3301 gtgcacccaa ctgatcttca gcactcttta ctttcaccag cgtttctggg
3351 tgagcaaaaa caggaaggca aaatgccgca aaaaagggaa taagggcgac
3401 acggaaatgt tgaatactca tactcttcct ttttcaatat tattgaagca
3451 tttatcaggg ttattgtctc atgagcggat acatatttga atgtatttag
3501 aaaaataaac aaataggggt tccgcgcaca tttccccgaa aagtgccacc
3551 tgacgtctaa gaaaccatta ttatcatgac attaacctat aaaaataggc
3601 gtatcacgaq gccctttcgt c

Fig. 24

Fig. 25

- 47/56 -

```

3201 ttactgtcat gccatccgta agatgctttt ctgtgactgg tgagtactca
3251 accaagtcac tctgagaata gtgtatgcgg cgaccgagtt gctcttgccc
3301 gtcgtcaata cgggataata ccgcgccaca tagcagaact ttaaaagtgc
3351 tcatcattgg aaaacgttct tcggggcgaa aactctcaag gatcttaccg
3401 ctgttgagat ccagttcgat gtaaccact cgtgcacca actgatcttc
3451 agcatctttt actttcacca gcgtttctgg gtgagcaaaa acaggaaggc
3501 aaaatgccgc aaaaaaggga ataaggcgga cacggaaatg ttgaatactc
3551 atactcttec tttttcaata ttattgaagc atttatcagg gttattgtct
3601 catgagcgga tacatatattg aatgtattta gaaaaataaa caaatagggg
3651 ttccgcgcac atttccccga aaagtgcacac ctgacgtcta agaaaccatt
3701 attatcatga cattaacctt taaaaatagg cgtatcacga ggccctttcg
3751 tc

```

Fig. 25

- 48/56 -

puhd10-3-tgf

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1  ctcgagttttaccactccctatcagtgatagagaaaagtgaaagtcgagttttaccactccc 60
   -----+-----+-----+-----+-----+-----+-----+
61  tatcagtgatagagaaaagtgaaagtcgagttttaccactccctatcagtgatagagaaaa 120
   -----+-----+-----+-----+-----+-----+-----+
121  gtgaaagtcgagttttaccactccctatcagtgatagagaaaagtgaaagtcgagtttacc 180
   -----+-----+-----+-----+-----+-----+-----+
181  actccctatcagtgatagagaaaagtgaaagtcgagttttaccactccctatcagtgatag 240
   -----+-----+-----+-----+-----+-----+-----+
241  agaaaagtgaaagtcgagttttaccactccctatcagtgatagagaaaagtgaaagtcgag 300
   -----+-----+-----+-----+-----+-----+-----+
301  ctcggtaccgggtagcgtgtacggtgggagggcctatataagcagagctcgttt 360
   -----+-----+-----+-----+-----+-----+-----+
361  agtgaaccgtcagatcgctggagacgccatccacgctgttttgacctccatagaagaca 420
   -----+-----+-----+-----+-----+-----+-----+
421  cggggaccgatccagcctccgcgggcccggaattcctgcagcccATGCACCTTGCAAAGGGC 480
   -----+-----+-----+-----+-----+-----+-----+
481  TCTGGTAGTCTGGCCCTGCTGAACTTGGCCACAATCAGCCTCTCTCTGTCCACTTGAC 540
   -----+-----+-----+-----+-----+-----+-----+
541  CACGTTGGACTTCGGCCACATCAAGAAGAAGAGGGTGGGAAGCCATTAGGGGACAGATCTT 600
   -----+-----+-----+-----+-----+-----+-----+
601  GAGCAAGCTCAGGCTCACCAGCCCCCTGAGCCATCGGTGATGACCCACGTCCCCTATCA 660
   -----+-----+-----+-----+-----+-----+-----+
661  GGTCTGGCACTTTACAACAGCACCCGGGAGTTGCTGGAAGAGATGCACGGGGAGAGGGA 720
   -----+-----+-----+-----+-----+-----+-----+
721  GGAAGGCTGCACTCAGGAGACCTCGGAGTCTGAGTACTATGCCAAAGAGATCCATAAATT 780
   -----+-----+-----+-----+-----+-----+-----+
781  CGACATGATCCAGGACTGGCGGAGCACAATGAACTGGCCGTCTGCCCCAAAGGAATTAC 840
   -----+-----+-----+-----+-----+-----+-----+
841  CTCTAAGGTTTTTCGTTTCAATGTGTCTCAGTGGAGAAAAATGGAACCAATCTGTTCGG 900
   -----+-----+-----+-----+-----+-----+-----+
901  GGCAGAGTTCGGGGTCTTGCGGGTGCCCAACCCAGCTCCAAGCGCACAGAGCAGAGAAT 960
   -----+-----+-----+-----+-----+-----+-----+
961  TGAGCTCTTCCAGATACTTCGACCGGATGAGCACATAGCCAAGCAGCGCTACATAGGTGG 1020
   -----+-----+-----+-----+-----+-----+-----+
1021  CAAGAATCTGCCACAAGGGGCACCGCTGAATGGCTGTCTTTTCGATGTCAGTACACTGT 1080
   -----+-----+-----+-----+-----+-----+-----+
1081  GCGCGAGTGGCTGTTGAGGAGAGAGTCCAAGTGGGTCTGGAATCAGCATCCACTGTCC 1140
   -----+-----+-----+-----+-----+-----+-----+
1141  ATGTCACACCTTTCAGCCCAATGGAGACATACTGGAAAAATGTTTCATGAGGTGATGGAAT 1200
   -----+-----+-----+-----+-----+-----+-----+
1201  CAAATTCAAAGGAGTGGACAATGAAGATGACCATGGCCGTGGAGACCTGGGGCGTCTCAA 1260
   -----+-----+-----+-----+-----+-----+-----+
1261  GAAGCAAAGGATCACCACAACCCACACCTGATCCTCATGATGATCCCCCACACCGACT 1320
   -----+-----+-----+-----+-----+-----+-----+

```

Fig. 26

Fig. 26

pUHD10.3-hft3 Ligand-exon 6 plasmid Length: 4224

1 CTCGAGTTTA CCACTCCCTA TCAGTGATAG AGAAAAGTGA AAGTCGAGTT
 51 TACCACTCCC TATCAGTGAT AGAGAAAAGT GAAAGTCGAG TTTACCACTC
 101 CCTATCAGTG ATAGAGAAAA GTGAAAGTCG AGTTTACCAC TCCCTATCAG
 151 TGATAGAGAA AAGTGAAAGT CGAGTTTACC ACTCCCTATC AGTGATAGAG
 201 AAAAGTGAAA GTCGAGTTTA CCACTCCCTA TCAGTGATAG AGAAAAGTGA
 251 AAGTCGAGTT TACCACTCCC TATCAGTGAT AGAGAAAAGT GAAAGTCGAG
 301 CTCGGTACCC GGGTCGAGTA GCGGTGTACG GTGGGAGGCC TATATAAGCA
 351 GAGCTCGTTT AGTGAACCGT CAGATCGCCT GGAGACGCCA TCCACGCTGT
 401 TTTGACCTCC ATAGAAGACA CCGGGACCGA TCCAGCCTCC GCGGCCCCGA
 451 ATTCCggggc ccccgccga aATGacagt ctggcgccag cctggagccc
 501 aacaacctat ctctctctgc tgctgtgtct gagctcgga ctacgtggga
 551 cccaggactg ctcttccaa cacagcccca tctctccga ctctgtgtc
 601 aaaatccgtg agctgtctga ctacctgtt caagattacc cagtcaccgt
 651 ggcctccaac ctgcaggacg aggagctctg cgggggcctc tggcggctgg
 701 tcttggcaca gcctggatg gagcggctca agactgtgc tgggtccaag
 751 atgcaaggct tgctggagcg cgtgaacacg gagatacact ttgtaccaa
 801 atgtgccttt cagccccccc ccagctgtct tgcctctgc cagaccaaca
 851 tctcccgcct cctgcaggag acctccgagc agctgggtgc gctgaagccc
 901 tggatcactc gccagaactt ctcccgtgc ctggagctgc agtgtcagcc
 951 cgtagagacg gtgtttcacc gtgtcagcca ggatgtctc gatctcctga
 1001 cctcgTGATc tgcccgctc ggctcccaa agtgctagga ttacagatac
 1051 tctcaaccc tgccacccc atggagtccc cggccctgg aggccacagc
 1101 cccgacagcc ccgcagccc ctctgtctct cctactgtg ctgccgtgg
 1151 gcctctgtct gctggcgtg gcctgggtgc tgcactggca gaggacgagg
 1201 cggaggacac cccgccctgg ggagcagggt ccccccgtcc ccagtcccca
 1251 ggacctgtct ctgtggagc actgacctgg ccaaggcctc atctgcgga
 1301 gccttaaca acgcagtga acagacatct atcatccat ttacagggg
 1351 aggatactga ggcacacaga ggggagtcac cagccagagg atgtatagcc
 1401 tggacacaga ggaagtggc tagaggccgg tcccttctt gggccctct
 1451 cattccctcc ccagaatgga ggcaacgcca gaatccagca cggccccc
 1501 ttacccaaact ctgaacaaag cccCGGAAT TCGAGCTCGG TACCCGGGGA

Fig. 26a

1551 TCCTCTAGAG GATCCAGACA TGATAAGATA CATTGATGAG TTTGGACAAA
 1601 CCACAAC TAG AATGCAGTGA AAAAAATGCT TTATTTGTGA AATTTGTGAT
 1651 GCTATTGCTT TATTTGTAAC CATTATAAGC TGCAATAAAC AAGTTAACAA
 1701 CAACAATTGC ATTCATTTTA TGTTTCAGGT TCAGGGGGAG GTGTGGGAGG
 1751 TTTTAAAG CAAGTAAAC CTCTACAAAT GTGGTATGGC TGATTATGAT
 1801 CCTGCAAGCC TCGTCGTCTG GCCGGACCAC GCTATCTGTG CAAGGTCCCC
 1851 GGACGCGCGC TCCATGAGCA GAGCGCCCGC CGCCGAGGCA AGACTCGGGC
 1901 GCGGCCCTGC CCGTCCCACC AGGTCAACAG GCGGTAACCG GCCTCTTCAT
 1951 CGGGAATGCG CGCGACCTTC AGCATCGCCG GCATGTCCCC TGGCGGACGG
 2001 GAAGTATCAG CTCGACCAAG CTTGGCGAGA TTTCAGGAG CTAAGGAAGC
 2051 TAAAATGGAG AAAAAATCA CTGGATATAC CACCGTTGAT ATATCCCAAT
 2101 GGCATCGTAA AGAACATTTT GAGGCATTTT AGTCAGTTGC TCAATGTACC
 2151 TATAACCAGA CCGTTCAGCT GCATTAATGA ATCGGCCAAC GCGCGGGGAG
 2201 AGGCGGTTTG CGTATTGGGC GCTCTCCGC TTCCTCGCTC ACTGACTCGC
 2251 TCGCTCGGT CGTTCGGCTG CGGCGAGCGG TATCAGCTCA CTCAAAGGCG
 2301 GTAATACGGT TATCCACAGA ATCAGGGGAT AACGCAGGAA AGAACATGTG
 2351 AGCAAAAGGC CAGCAAAAGG CCAGGAACCG TAAAAGGCC GCGTTGCTGG
 2401 CGTTTTTCCA TAGGCTCCGC CCCCTGACG AGCATCACAA AAATCGACGC
 2451 TCAAGTCAGA GGTGGCGAAA CCCGACAGGA CTATAAAGAT ACCAGGCGTT
 2501 TCCCCCTGGA AGCTCCCTCG TGCGCTCTCC TGTTCGACC CTGCCGCTTA
 2551 CCGGATACCT GTCCGCCTTT CTCCCTTCGG GAAGCGTGGC GCTTTCTCAA
 2601 TGCTCACGCT GTAGGTATCT CAGTTCGGTG TAGGTCGTTT GCTCCAAGCT
 2651 GGGCTGTGTG CACGAACCCC CCGTTCAGCC CGACCGCTGC GCCTTATCCG
 2701 GTAAGTATCG TCTTGAGTCC AACCCGTAA GACACGACTT ATCGCCACTG
 2751 GCAGCAGCCA CTGGTAACAG GATTAGCAGA GCGAGGTATG TAGGCGGTGC
 2801 TACAGAGTTC TTGAAGTGGT GGCCTAACTA CGGCTACACT AGAAGGACAG
 2851 TATTTGGTAT CTGCGCTCTG CTGAAGCCAG TTACCTTCGG AAAAAGAGTT
 2901 GGTAGCTCTT GATCCGGCAA ACAAAACCACC GCTGGTAGCG GTGGTTTTTT
 2951 TGTTTGCAAG CAGCAGATTA CGCGCAGAAA AAAAGGATCT CAAGAAGATC
 3001 CTTTGATCTT TTCTACGGGG TCTGACGCTC AGTGGAACGA AAATCAGCT
 3051 TAAGGGATTT TGGTCATGAG ATTATCAAAA AGGATCTTCA CCTAGATCCT
 3101 TTTAAATTAA AAATGAAGTT TTAAATCAAT CTAAAGTATA TATGAGTAAA
 3151 CTTGGTCTGA CAGTTACCAA TGCTTAATCA GTGAGGCACC TATCTCAGCG

Fig. 26a

3201 ATCTGTCTAT TTCGTTTCATC CATAGTTGCC TGA TCTCCCCG TCGTGTAGAT
 3251 AACTACGATA CGGGAGGGCT TACCATCTGG CCCCAGTGCT GCAATGATAC
 3301 CGCGAGACCC ACGCTCACCG GCTCCAGATT TATCAGCAAT AAACCAGCCA
 3351 GCCGGAAGGG CCGAGCGCAG AAGTGGTCCT GCAACTTTAT CCGCCTCCAT
 3401 CCAGTCTATT AATTGTTGCC GGGAAGCTAG AGTAAGTAGT TCGCCAGTTA
 3451 ATAGTTTGCG CAACGTTGTT GCCATTGCTA CAGGCATCGT GGTGTACACG
 3501 TCGTCGTTTG GTATGGCTTC ATTCAGCTCC GGTTCCCAAC GATCAAGGCG
 3551 AGTTACATGA TCCCCCATGT TGTGCAAAAA AGCGGTTAGC TCCTTCGGTC
 3601 CTCCGATCGT TGTCAGAAGT AAGTTGGCCG CAGTGTTATC ACTCATGGTT
 3651 ATGGCAGCAC TGCATAATTC TCTTACTGTC ATGCCATCCG TAAGATGCTT
 3701 TTCTGTGACT GGTGAGTACT CAACCAAGTC ATTCTGAGAA TAGTGTATGC
 3751 GGCGACCGAG TTGCTCTTGC CCGGCGTCAA TACGGGATAA TACCGCGCCA
 3801 CATAGCAGAA CTTTAAAAGT GTCATCATT GGAAAACGTT CTTCGGGGCG
 3851 AAAACTCTCA AGGATCTTAC CGCTGTTGAG ATCCAGTTCG ATGTAACCCA
 3901 CTCGTGCACC CAACTGATCT TCAGCATCTT TTA CTTTTCAC CAGCGTTTCT
 3951 GGGTGAGCAA AAACAGGAAG GCAAAATGCC GCAAAAAAGG GAATAAGGGC
 4001 GACACGGAAA TGTTGAATAC TCATACTCTT CCTTTTTCAA TATTATTGAA
 4051 GCATTTATCA GGGTTATTGT CTCATGAGCG GATACATATT TGAATGTATT
 4101 TAGAAAAATA AACAAATAGG GGTTCGCGC ACATTTC CCC GAAAAGTGCC
 4151 ACCTGACGTC TAAGAAACCA TTATTATCAT GACATTAACC TATAAAAATA
 4201 GCGGTATCAC GAGGCCCTTT CGTC

Fig. 26a

- 55/56 -

Recovery of insert: EcoRI

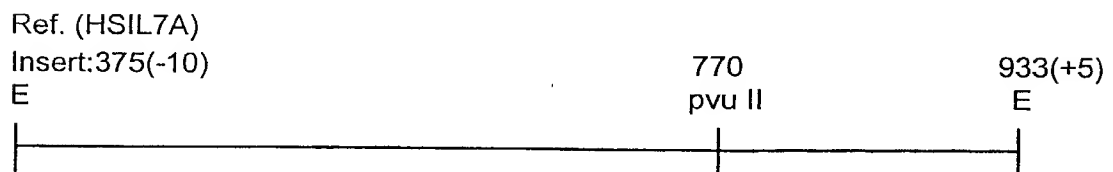
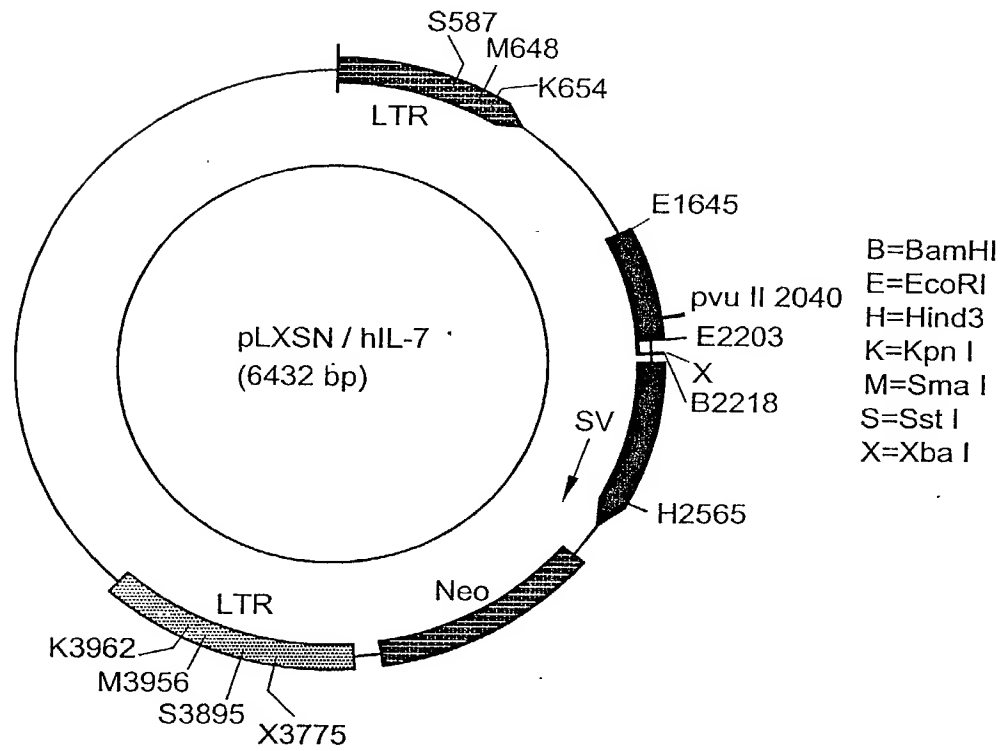
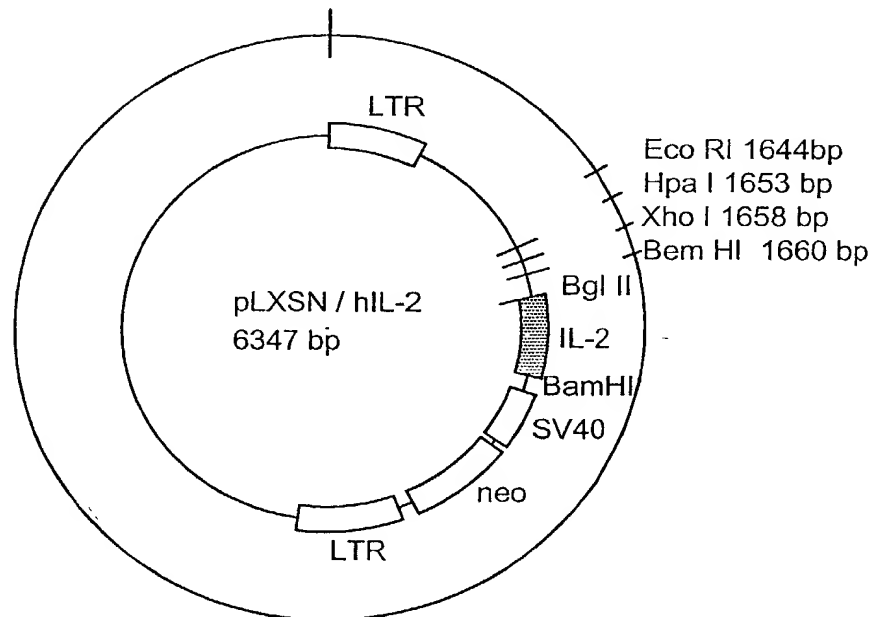


FIG.27

- 56/56 -

Plasmid-chart

Designation:	pLXSN/hIL-2	Log no.:	
Insert:	hIL-2 (473bp)	Location:	
Vector:	pLXSN (5874bp)	Selection:	Amp
Recovery of insert:	Eco RI / Bam HI	Ref.:	pLXSN BioTechniques 7,980-987(1989)
	Hpa I / Bam HI		hIL-2 Nature 302,305-309(1983)
	Xho I / Bam HI		



Insert: Bgl II
5' AGA TCT ACA - IL-2 - TAA TTA AGT BamHI 473 bp

FIG.28